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FOR BUSINESS



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SPECIAL PUBLICATION OF NATIONAL BUSINESS AIRCRAFT ASSOCIATION



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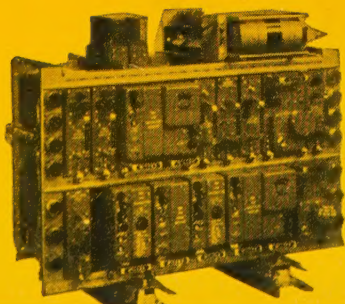
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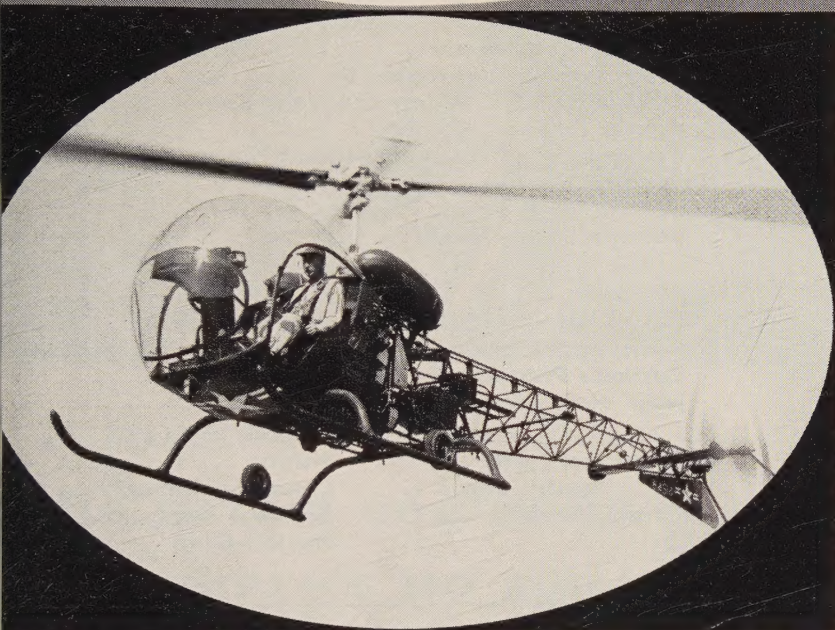
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Skyways

MARCH, 1958

FOR BUSINESS

The official publication of the National Business Aircraft Association

COVER: Helicopters depict the theme of this issue which includes coverage of the Helicopter Association of America convention. The 'copters also introduce a new monthly section which will tell the story of their use in business.

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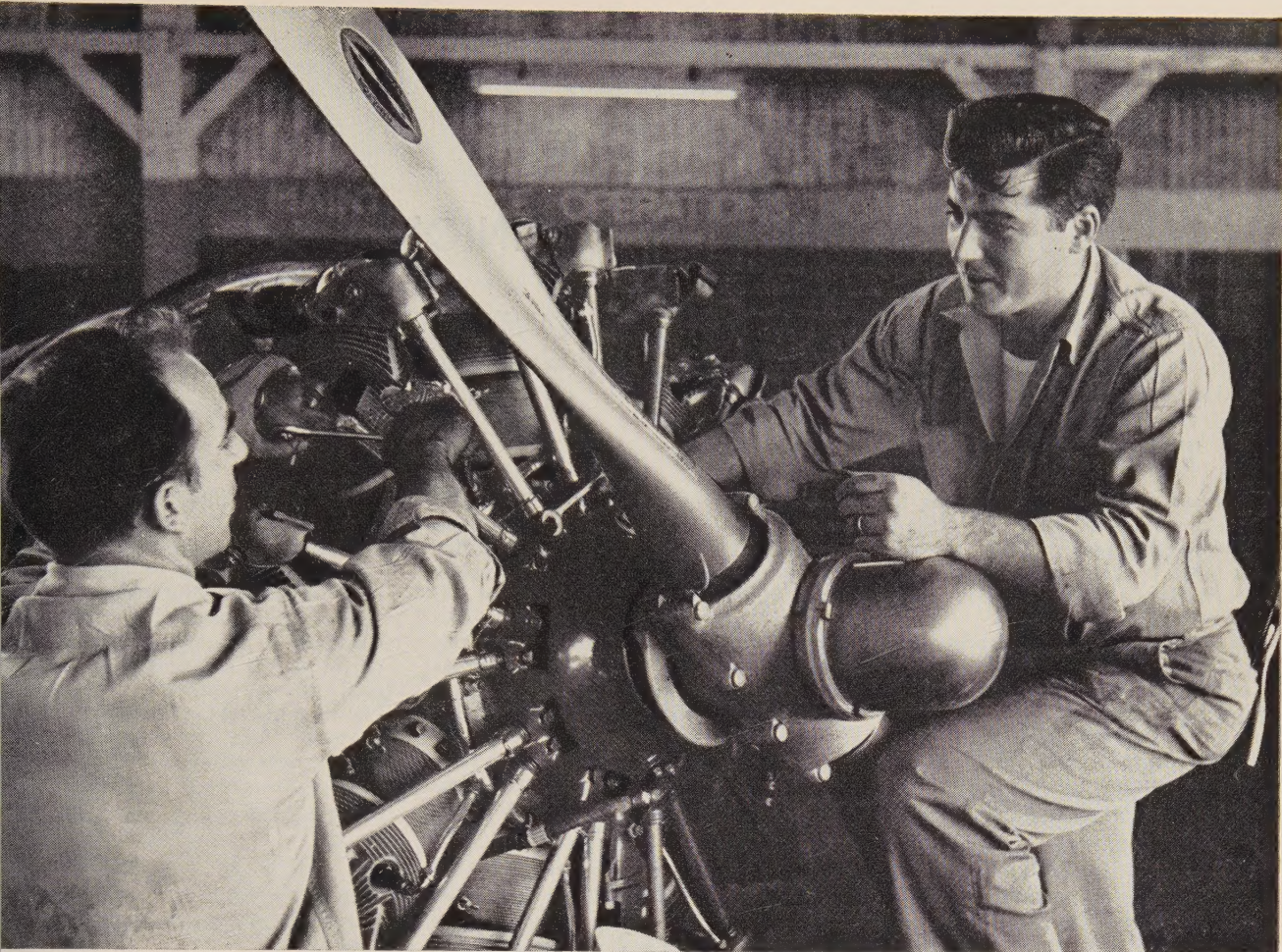
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ONE MAN'S OPINION

The following editorial was printed in the January 27 issue of American Aviation and signed by the magazine's publisher, Wayne Parrish.

Trouble Ahead

There are some scandals brewing in the business aircraft field and NBAA or some other responsible interests had better move to clean things up or the entire business aviation field is going to suffer from a boomerang.

The scandal? Well, let's put in blunt terms what is being gossiped about over the country. A lot of big corporations have bought fleets of fine airplanes. More often than not, the top pilots of these fleets have become great pals of the top corporation executives who have taken a great liking to flying in company airplanes.

But some of the pilots have taken advantage of a good thing. Having been given full decision responsibility for purchase, modifications, maintenance and overhaul . . . usually beyond the reach of corporate auditing jurisdiction . . . they began getting ideas and some of the local operating companies were only too willing to cooperate in order to get the business. (In some cases the operators started the ball rolling.) First it was little favors, then gift automobiles or similarly high-priced touches. In the past year these "touches" have grown bigger and

bolder . . . into the realm of big dough.

The result? Not only a breach of ethics, but the cost of operating business aircraft is going higher and higher to cover the "touches" and favors. Some corporations are going to clamp down on the use of business aircraft because of high operating costs without ever knowing that there was a lot of under-the-table "take" involved. The time to stop is right now before it hurts everybody.

Wayne W. Parrish

What Are The FACTS? NBAA's reply

Dear Mr. Parrish,

I was considerably disturbed by your January 27 editorial "Trouble Ahead," in which you forcefully indicted a broad segment of the business aviation field.

While I have no disagreement with the intent of your writing, I would presume that there may be a few business pilots who may have taken advantage of their position where they have acted as purchasing agents for aircraft parts, supplies or services for their companies, I must take strong exception to your charge that this is a widespread practice which has caused business aircraft operating costs to go higher and higher.

I must also take equally strong steps to emphasize to you that we have thousands of conscientious, honest, professional business pilots who realize that their very existence depends upon the safe and economical operation of their company's aircraft. To cast doubt and suspicion on many for the actions of a few is misleading and does a grave injustice which cannot go unchallenged.

In your editorial you make two very strong statements which you indicate constitute a "scandal." The first is based on what you say is

"gossiped around the country" and refers to these kickbacks or bribes allegedly taken by corporate pilots presumably under the guise of favors. The second serious indictment you make is the fact that some corporations operating business aircraft are so loose in their control and auditing methods that these illegal practices may be permitted.

Naturally, if, as you claim, these kickbacks or "touches" reach the proportion of gift automobiles or "big dough" which must mean thousands of dollars, then there is just cause for concern. However, I must re-emphasize that in my opinion the honesty and integrity of the business pilot is comparable to that of any other competent professional group.

My sincere belief that these practices are not as rampant as your editorial would indicate is based on three distinct points:

1. Point one is the fact that these pilots to whom you refer are, as indicated previously, an honest and trustworthy group of men; and we do not believe that the fact that these men have been accepted as friends and trusted employees of corporation executives gives them any great op-

portunity for taking money or bribes on the side. We do not believe that the preponderantly great majority of the pilots of our corporate aircraft would breach their ethics to the point of accepting a bribe.

2. Contrary to your belief that the individual pilot is given full decision and responsibility for purchase, modification, maintenance and overhaul of aircraft, it has been our observation that most companies operating aircraft integrate a system of purchasing control consistent with sound auditing practices, and that any widespread abuse such as you indicate would be readily detected. It is also our feeling that any sound corporate purchasing and auditing practice would not permit such abuses to be regularly repeated and to result in such huge kickbacks as are alleged. In corporations where the aircraft is rather small, it is possible that all necessary controls have not been instituted, but these are definitely a small minority.

3. Our final point concerns the integrity of the fixed base operator or the supplier who sells to corporations on the basis of these kickbacks or "touches." Again, I have checked with many corporate pilots and rep-

entatives of companies who fly aircraft in American business, and not one of them indicated that they had ever been offered a kickback or a promise of future benefit by an operator or supplier. Other than an occasional luncheon or a small Christmas gift, no one could identify any overture on the part of a supplier which could be classed as a bribe. It is my personal contention that a supplier or a fixed base operator who must depend upon under-the-counter payments for his continuation in business would not and should not last long. I can assure you that operators of business aircraft look upon their suppliers in his field with as close scrutiny as they do suppliers in any other field.

In summary, therefore, I would like

to repeat that I myself, as an individual and as a spokesman for the National Business Aircraft Association, do not condone kickbacks or bribes in any form of business enterprise. Undoubtedly, there have been occasions upon which a bribe has been offered, and correspondingly where a bribe has been taken. We believe any of these practices to be distinctly minor and feel confident that the business community has and will continue to properly police itself against such abuses.

Perhaps by your editorial you have called attention to something which may be of value to business interests. You can be assured that the matter will be publicized as a caution, not as an indictment.

Therefore, although I must seri-

ously disagree with the tone and the implications made in your editorial, I will join with you in bitter denunciation of any such practices, however small they may be; and I can assure you, as President of the National Business Aircraft Association, that every effort will be made to eradicate those in the business aviation field who may prey on the weaknesses of a few.

It would be appreciated if you would publish this letter of my reply to your editorial in your magazine, as I believe the National Business Aircraft Association position on this controversial matter should be immediately expressed.

Very truly yours,
Joseph B. Burns
President

FROM MULES TO MISSILES

in a little more than a single generation, we have bridged the gap from mules to missiles.

There is change all about us; change that causes wonder—and consternation. And the pace of change is quickening.

Only yesterday the mule-drawn plow tilled our farms. Today, one small tractor can do what dozens of mules could not do. Result: abundance of life-giving agricultural products to the tune of plenty for all *PLUS* five billion dollar government subsidized surplus.

Yes, there is change all about us; change which we somehow seem to take for granted but which, more often than otherwise, finds us unprepared to live with it.

The County Seat which was hours away by horseback or sloop is now

within a few minutes away. Distant capitals and metropolitan cities which once required long preparations, and tiring and time consuming train and/or boat trips are now passed over by aircraft and scarcely noticed in the passing. Local, national, and international news that once awaited the postman's delivery is now almost instant and universal knowledge. The radio and the coaxial cable have made it so.

And we have only witnessed the beginning. It seems that even trying to realize and trying to evaluate what has happened to us is difficult. If so, contemplating what lies ahead, adjustments required will be doubly so.

Think! One gallon of sea water equal to the energy of 300 gallons of gasoline! And nearly two-thirds of the earth's surface is covered by sea

water! Do you now doubt that man will reach the moon? Why? Do we not now have speeds capable of doing it in a matter of hours? The technical break-throughs necessary to solve the other involved problems are already past men's minds and are literally on the drawing boards.

Are we ready for such changes? We are not. We are not even ready for the jet age. Millions of minds do not yet admit that the transportation of tomorrow will be through the air ocean—let alone above it! As surely as the tractor replaced the mule, the air currents will replace the waterways, the rails, and the highways and will become the avenues of all but local or chosen leisure travel in the not too distant future. Aviation is the one sure bet in the changes to be faced in the years ahead!

NBAA'S RECOMMENDED STANDARDS

The NBAA recognized the need for a manual of recommended standards covering management, operation, and maintenance of business aircraft.

As a result of arrangements made with the Board of Directors with Aeronautical Consultants and Associates, studies have been in progress since last spring.

Special membership committees, a committee of the Board of Directors, and countless individual members, repre-

sentatives of CAA, and others have steadfastly devoted themselves to this important task. The finished product is about ready for publication and the first edition will soon be distributed to NBAA members.

Conceived as a set of general recommendations applicable to any type of business aircraft operation, this manual will be found to be an indispensable *check list* in the orderly conduct of all phases of business aircraft

operations. Any business aircraft operator, whether with one airplane or with a fleet, can easily adapt these standards to his own operations.

The Board of Directors feels that while the first edition literally covers the water front and includes the present best thinking of the industry, it will, as is true with all other publications, be necessary to keep it living and vital by such changes as the future may show to be desirable.

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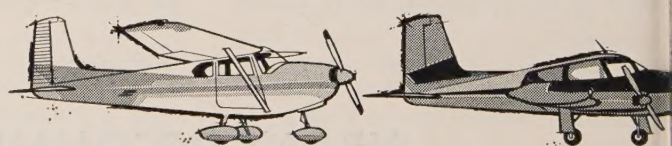
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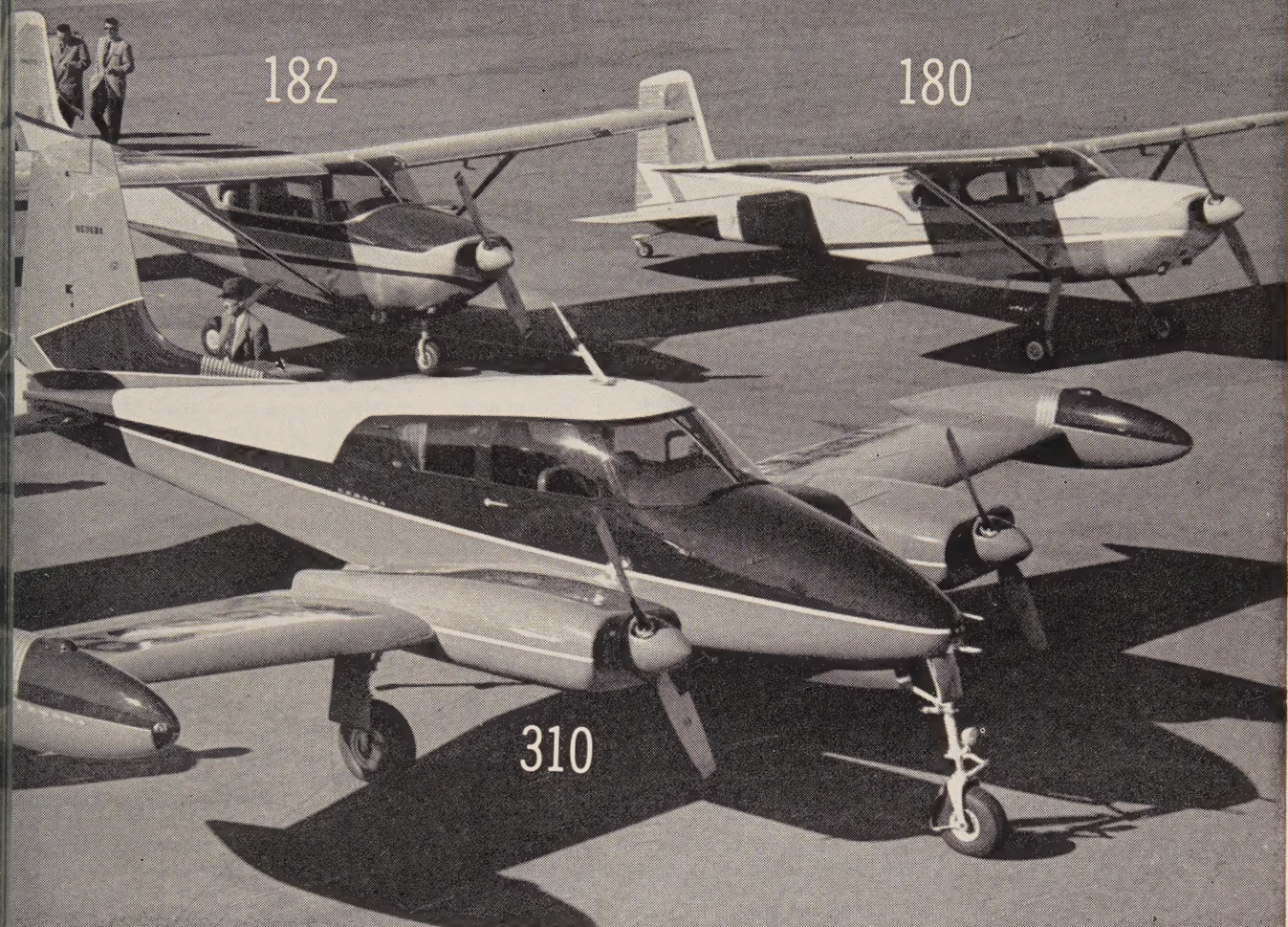
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NBAA . . . Director's Notes

The questionnaire sent to all NBAA members regarding the proposed changes in Civil Air Regulations Part 60 brought a response that indicates that the CAB could have done a better job of presenting their reasons for the need for such changes.

Suggestion to CAB: In future draft releases the *present* CAR should be given, followed by the proposed changes and the reasons therefor, then the *new* CAR as it would be rewritten should be given.

This change in presentation would facilitate evaluation of the proposed changes with much less difficulty.

* * *

Flashing, high-intensity red/green wing tip lights and ditto for the white tail light is United Air Lines and Grimes' latest project to provide a better anti-collision lighting system.

Previewed in flight from Washington National Airport the United DC-6B equipped with a test version of the new system made itself very conspicuous against all types of backgrounds.

Unusual features are "dimmer" switches that drop the light intensity when the gear is lowered and a 70-degree downward sweep of the white tail light to give warning to climbing and overtake aircraft. A six-degree overlap, each light sweeps 126 degrees, provides instant recognition of aircraft direction.

After cruising around the test ship for almost an hour, we got to like the idea. After checking on the ground we found that the present light is geared only for Convairs and the "on-upwards" type of aircraft. Grimes assures us that a smaller model is under consideration, one which will be adaptable to the majority of aircraft in use.

* * *

Recent announcement of TWA's pioneering steps in the handling of business aircraft with connecting airline passengers marks the first great step forward in solving a distressing problem.

In a letter to NBAA, Pierre Desautels, Vice President of TWA, outlined the reservations and airport ramp procedures available for NBAA members and gave assurance that TWA personnel have been instructed through their company to give their every assistance in facilitating quick interchange of these passengers.

Here's a *BIG* salute to a progressive airline TWA!

* * *

A regulation issue in August, 1957 by the Mexican CAA was recently discovered when an NBAA member attempted to secure permission to fly from New Orleans to Merida. Said the regulation, in effect, private U.S. aircraft can land at the following eight Mexican airports and can *take off* for these spots from only six U.S. ports.

The U.S. Embassy accepted the regulation without question.

The U.S. State Department accepted the regulation without question.

The CAA in Washington accepted the regulation without question.

The CAA also did not publish the Mexican regulation.

When this sorry state of affairs was uncovered NBAA made immediate protests to (1) the CAA (2) the U.S. State Department and (3) Mexican CAA.

One big question was raised, and several smaller ones too.

Big question: Since when does the Mexican government tell the United States government from which U.S. airports U.S. aircraft can depart?

Within a week's time, a veritable speed record in matters diplomatic, the Mexican government withdrew their regulation and so notified (1) the U.S. Embassy (2) the U.S. State Department (3) The CAA and (4) NBAA.

It may also be said that the Mexican regulation had the best intention in the world—the expediting of private aircraft, but between intention and execution something was lost in translation.

* * *

Present CAB rulings and CAA policies effectively prevent air traffic controllers and tower personnel from easily getting enroute cockpit familiarization in airline aircraft.

Although many of the more senior tower and center controllers have, in the past, gotten an excellent education into the cockpit scrambling that goes on in instrument weather when aircraft approach heavy air traffic areas . . . there are a lot of new lads that have not the faintest idea of what goes on on the "receiving" end of a clearance.

Here's a great chance to help speed up the education of these youngsters. And, at a time when good air traffic controllers are sorely needed it stands to reason you will be helping yourself and everyone else who depends upon them if you help accelerate their training program.

How can it be done?

Next time you have a "round robin" trip, invite one of the lads to join you if he has the day off. Let him get some first-hand experience with your problems.

Let him hear those rapid-fire clearances, let him sweat out weak radio signals, let him hold in turbulence, let him make a holding pattern off airways for forty minutes while waiting for a clearance. Maybe just a routine instrument day in New York would be enough!

The business pilots *who* have taken these men aloft report that it is amazing how much better these controllers handle the traffic . . . and how much better they understand the pilots' reasons for being unable to always promptly reply or respond to controllers instructions.

Bill Lawton

The January Board Meeting was held at the Park Sheraton Hotel, New York. Those present were: Joseph B. Burns, president, representing Fuller Brush Co.; Gerard J. Eger, executive vice president, representing International Harvester Co.; John H. Winant, treasurer, representing Sprague Electric Co.; B. J. Bergesen, representing Ford Motor Co.; Henry W. Boggess, representing Sinclair Refining Co.; James Metner, Jr., representing Texas Eastern Transmission Corp.; Walter C. Pague, representing ARMCO Steel Corp. and William K. Lawton, your Executive Director.

It's a rare occasion when your National Headquarter's staff has the opportunity of actually taking a business trip in a business aircraft, specially seeing the helicopter as an aid to businessmen in metropolitan areas. Recently, I had the opportunity of aerial surveying the Hudson River and heliports of the Port of New York Authority in their new Bell with Ray Chaisson in command.

NOTICE TO ALL NBAA REPRESENTATIVES: Have you checked your supply of NBAA decals lately? Do you have one mounted on each side of the door of each plane? If not, please inform National Headquarters. We will forward as many as needed.

MAILINGS: Airworthiness Directive—Lockheed (Model 18) Lodestar operators; Bendix—applies to Bendix (Eclipse Pioneer) Type 756-22, 756-62 and 756-64 Starters; TWA to provide available gate space to business aircraft (NBAA) with connecting passengers; Recent Changes in Flare Regulations—(Parts 40, 41, 42, 43) of CARs; NBAA Associate Members Eligible for NBAA Safety Awards in 1958; Revision of Directory of Business Aircraft (as of 1/1/58).

It was decided at the January Board Meeting that NBAA's 13th Annual Meeting (1960) would be held at Los Angeles.

Executive Director, William Lawton, has been on the road again. During January he spoke before the Pennsylvania Aviation Trades Assn. at its Annual Meeting held at Harrisburg; attended a joint meeting held by NBAA-CAA in Region 1; Board of Directors meeting at New York.

Information regarding Regular or Associate Membership in NBAA is readily secured by writing to the Executive Director, NBAA, 344 Pennsylvania Building, Washington 4, D.C.

NBAA is a non-profit organization designed to promote aviation interests from discriminating legislation by Federal, State or Municipal agencies, to enable business aircraft owners to be represented as a united front in all matters where organized action is necessary.

C.M.

MORE BRISTOL ORPHEUS ENGINES ordered by Lockheed for second JetStar utility transport prototype. Bristol Aero-Engines Ltd. supplied Orpheus engines to speed up first flight of JetStar. Firm has agreement with Curtiss-Wright Corp. for jointly-developed derivative of the Orpheus for manufacture in U.S. under TJ-37 designation as production engine for American-built aircraft.

★ ★ ★

FAIRCHILD SHELVES JET EXECUTIVE M-185 plans. Reason given, to concentrate on development, production and sale of propjet transports and small turbojet engines. Continental Can Co. had ordered five; initial payments returned. Emphasis now on F-27, ordered by 14 corporations for exec use.

★ ★ ★

PIASECKI AND BREGUET SIGNED INTERCHANGE agreement for technical and product information to strengthen competitive position and market scope of both firms. The French Breguet Co.'s Henri Ziegler, director general, and Piasecki Aircraft Corp.'s Frank N. Piasecki, president, made the agreement. Both firms pioneered in helicopters. Louis Breguet designed and flew first 'copter, 1907. Piasecki designed first successful tandem rotor 'copter.

★ ★ ★

HELIO STRATO-COURIER SETS ALTITUDE RECORD for light aircraft in climb to 31,200 feet over Mexico City. Record certified by FAI. Pilot-owner, Luis Struck, head of Servicio Aerotecnico of Mexico City, was accompanied by Claudio Robles Ochoa, assistant director of Mexican Civil Aeronautics Dept. Strato-Courier is high-altitude version of Helio Courier, manufactured by Helio Aircraft Corp. at Pittsburg, Kan. Engine is supercharged 340 hp.

★ ★ ★

FIBREGLASS PLANE PROMISES GOOD FUTURE, Taylorcraft, Inc.'s President B. J. Mauro anticipates. The four-place model will be added to business aircraft market when CAA certification is completed.

★ ★ ★

AVIATION NOISE CONTROL EQUIPMENT to be handled by new worldwide corporation, International Aeroustics Corp. Company headed by Martin Hirschorn, president, with headquarters at New York. Firm only source for "Acou-Stack," "Dura-Stack" and "Multi-Jet" jet-engine and turbo-prop noise suppressors. Parent firm is Industrial Acoustics Co. of New York.

★ ★ ★

HOW THE OTHER HALF WILL LIVE is reflected by pilot contract by National Airlines and Airline Pilots Assn. reestablishment of pay on Lockheed Electra Prop-Jet and Douglas DC-8 jet planes. Pay will range from \$22,000 to \$26,800. Business aircraft pilots take notice.

★ ★ ★

DATELINES: March 17-20, Aviation Conference, ASME, Statler-Hilton, Dallas, Tex. . . . March 31-April 2, Petroleum, Aircraft Sessions, American Institute of Electrical Engineers, Tulsa, Okla. . . . April 8-9, Aeronautic Production Forum, SAE, Hotel Commodore, New York, N.Y.

★ ★ ★

WHO'S NEW: J. F. Harper, asst. managing director, Bristol Aircraft Ltd. . . . R. J. Wright, manager, Washington, D.C. office, Garrett Corp. . . . James P. Buckley, director, sales-service, Eclipse-Pioneer Div., Bendix . . . Murray Kanes, director of engineering, Friez Instrument Div., Bendix . . . Henry J. Hamm, aviation sales manager, Communications Div., Topp Manufacturing Co.



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Aviation Roundup

TWA COOPERATES WITH NBAA MEMBERS to provide available gate space for connecting passengers. This, the first major step in airline recognition of business aircraft as suppliers of airline passengers. NBAA appreciates TWA cognizance of the fact and cooperation of the spirit. Pierre G. Desautels, TWA passenger service vice president, suggests that NBAA members advise airline at time of making reservations of the type of aircraft, registration number, ETA. Also, inform local tower of expected connection.

★ ★ ★

MORE COMFORT FOR EXECUTIVES with pressurization, air cycle cooling and electronic temperature control systems by AiResearch installed on North American's Sabreliner, Grumman's Gulfstream. Additions to enable planes high altitude flight with low level environment. AiResearch is manufacturing division of The Garrett Corp., Los Angeles, Calif.

★ ★ ★

AIRPORTS GET MORE THAN \$6,000,000 from CAA Federal-aid Airport Program to construct and improve the nation's airport network. Total of \$6,631,596 is allocated in two months for 49 projects throughout the country. Amounts are matched by local communities sponsoring the airport projects.

★ ★ ★

U. S. HELICOPTER EXPORTS for 1957 valued at 49 percent more than 1956, Aircraft Industries Assn. reports. Total '57 value was \$42,874,928. Manufacturers exported 236 helicopters last year compared to 178 in 1956. Four major helicopter manufacturers participated in the AIA report.

★ ★ ★

BRITISH AIRCRAFT EXPORTS total nearly \$280,000,000 for 11 months of 1957. Sycamore helicopters, Viscount airplanes and other models used in business aviation, or having application to business aviation, are included.

★ ★ ★

HELICOPTER FIRE ENGINE aids in hard-to-get-at fires with portable airfoam extinguishing unit. Where trucks can't get to the fire by ground, 'copter gets in by air. New foam unit nearing completion by American LaFrance Corp., Elmira, N.Y., in collaboration with engineers at Sikorsky Aircraft, Bridgeport, Conn. Radical fires as crashed planes made accessible and extinguishable by 12-by-5-by-4-foot unit with up to 3,000 airfoam gallons.

★ ★ ★

HELICOPTER AS FIRE-FIGHTER demonstrated by "beating down" flames with rotor blast in gasoline-caused fire. Object to aid rescue of persons caught in sudden billowing-type fires. Permits fire-fighters on foot to get up close with dry chemicals using minimum protective equipment.

★ ★ ★

FOUR TIMES AROUND THE EQUATOR is the distance the Bell 47G and 47G-2 helicopters are authorized to fly without major overhaul. This, the longest period in field of 'copter operations, points to new era of economical helicopter operations, says William J. Diehl, Bell service manager.

★ ★ ★

RECORD-BREAKING ROTOR BLADES on Cessna Seneca, YH-41, when establishing altitude record of 30,335 feet. (See story, page 31). Manufactured by proud Prewitt Aircraft Co., Clifton Heights, Pa.

Greenhouse Patter

By "Torch" Lewis

MIDDLE OF JANUARY attended a meeting of the NBAA and Airways Planning Board Region One at Idlewild. Bill Lawton will most likely detail this elsewhere in SKYWAYS; however, it was very interesting and well worth the trip. The solution to the vexing problem of airways planning is always more easily reached if both planners and users understand each others problems. When we adjourned at 4 p.m., both factions were more appreciative of the view from the other side of the fence. If there is one solid recommendation to be made from the whole business, it is that there should be frequent meetings of this nature.

At invitation of old friend, Vic Converso, we rode back in a Port Authority hopper via LaGarbage and East River. There's nothing new or unusual about the New York skyline seen day after day, unfolding at 200 mph. To observe came from a hellicopter however is a horse of a different color whatsoever.

Approaching the Port Authority Bldg. from the Hudson River side, we perceived a windsock on the northwest end of the building and beneath it, tastefully decorated in Port Authority yellow was a trampoline size pad on which our pilot was obviously going to attempt a landing.

Overcoming a general feeling of sheer stark terror, we stole a furtive glance at the airspeed. Ye gawds 15 knots! Praying that a merciful Providence would skewer us onto yonder spire rather than a free, untranneled fall into 10th Avenue, we looked down and landed gently on the tarpaulin. Bravo—what a masterful pilot is this man! Stopped in Herb Fisher's office for a moment then quaffed a double lemon squash at Poppa's with Converso, and badgered the patrons with our recent feat of derring-do.

Back in office, found Flight Safety Foundation safety exchange bulletin simply entitled "ICING." Very good reading. I is kind of a critique on the different standards which describe icing conditions. The Air Force, Weather Bureau, NACA and ICAO all have different standards for describing icing conditions. Actually, there should be still another. They left out the important one and that is the way conditions actually are. Icing conditions should be sufficient excuse to waive the profanity of FCC in describing same with any reasonable degree of accuracy. Ice, which is but petty annoyance to a Convaire, could be very serious business to a bootless Bonanza and it is high time that we had some consistency in its description.

SHORT SHOTS—Can it be that the recently announced pressurized Aero Commander heralds a new era of comfort in Business Flying? Frank E. Gannett, newspaper and radio magnate who died Dec. 3rd after long illness, was one of Business Flying pioneers. When we were very young can

Air Your Views

Dear editor.

It was with great interest that I read your Skyways' article on the OX-5 Club. Having made my first solo and obtained my private certificate in an OX-5 Challenger, I believe that I may be eligible for membership. I would appreciate any details on how this may be accomplished.

Charles S. Brower

U.S. Dept. of Commerce, C.A.A.

International Field Office London, Eng.

Dear sir.

With reference to your article of tower enroute control, Region One, (November) I wish to inform you that enroute control between Indianapolis-Cincinnati, Indianapolis-Louisville was implemented on May 1, 1957, at the altitudes of 3,000 and 4,000 feet. Pilots are to advise the ground controller as they taxi out.

Lyle N. Underwood Chief, Airport Traffic Weir-Cook Airport Indianapolis, Ind.

Gentlemen:

I have just read your December editorial regarding the decision of Cessna to cancel the 620 project and agree wholeheartedly that the decision is sad news.

I disagree entirely, however, with paragraph five, in which you indirectly accuse the aircraft industry of demanding government subsidation and/or financing before producing new civil aircraft.

It should be pointed out that all industry (including aircraft manufacturers) have responsibilities—to themselves to stay in business on a profitable basis, to their employees to provide a means of making a living, to their customers to keep producing good products and to their stockholders to protect their investments. Unrealistic or unprofitable ventures ignore these responsibilities.

We believe that eventually some way will be found to produce the ultimate executive aircraft at a price which will allow it to be sold. In the meantime, let us not criticize the aircraft industry for refusing to go broke chasing illusions. Cessna is to be commended for their courage in attempting the 620, and their even greater courage and realism in cancelling it.

How can we expect our industry to accept a catastrophic loss in order to sell us a one million dollar airplane for \$400,000?

John Brownlee, Sales Manager
Tulsair Distributors, Inc.

recall thrilling ride in his Tri-motored Stinson. Russ Holderman, his pilot and close friend, is the only Early Bird with an ATR.

Add to list of Aviations Nice People. Joe Clemow of Kodak, Joan Maloney Meigs Field major domo, Luke Mosely of Pepsi-Cola.

DID YOU KNOW—That Wilbrod has identical twin brothers (Leebrod and Clydebrod) they are both throttle jocks. The hangar flying what goes on when they all three gather round the Ol Pot Belly is something scandalous.



By Russ Brinkley, Pres.

Members of the OX5 Club brought back memories of the air circus barnstorming days, during the International Air Show at Miami. Despite the unusual Florida weather, huge throngs turned out to provide proof that the public is still interested in air shows and will pay good money to see them.

Top star of the flying program was Bevo Howard, with his Buecker-Jungmeister, powered by a 165 hp Warner engine. Bevo provides the fastest moving quarter hour of precision flying that anyone has ever witnessed, and this is the same procedure he has followed to win championship honors at air shows, both here and abroad.

Comedy relief for the occasion was provided by Bob McComb in a tandem-place Aeronca. Known as Uncle Fudd, Bob is actually a flight instructor for the Air Force contract school at Spence Air Base, Ga. Seated backward in the front cockpit, with one foot hanging outside the cabin, Bob gave a perfect demonstration of how not to fly. No one was more interested in the demonstration than was the pilot on the ground. Bob begins his act with some clowning byplay in front of the grandstands, but, once he is in the air and flying sideways or banking the wrong way for turns, the audience soon realizes that a true master is at the controls.

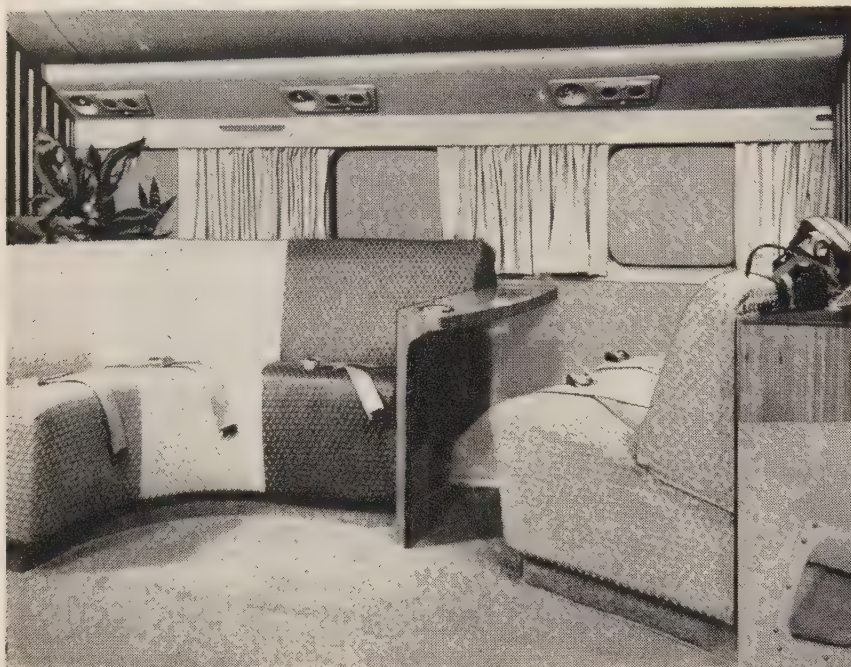
Honors for oldtime flying went to Billy Parker with his OX5 powered Curtiss pusher biplane. Parker built the plane in 1914 and has been modifying it from time to time, to add to its performance. One of the highlights of Billy's act came, when he followed a Super Sabre off the ground in demonstrations of maximum performance takeoff. The jet used up a long strip of pavement before it broke ground and then the pilot hugged the deck until climbing airspeed was attained. Parker was off the ground after a few feet of roll and then pulled the biplane into a steep climb. The pusher circled the field and landed with a short roll.

Among the many other OX5ers taking part in the meet were Kenneth Benson, who sponsored the American visit of the Breguet airliner from Paris and Rusty Heard whose Monocoupe is as fit as the day it came off the production line.

Several hundred OX5ers witnessed the flying program which was described jointly by Bill Sweet and Russ Brinkley, working together for the first time in their long air show careers.

LOUNGES and GALLEYS

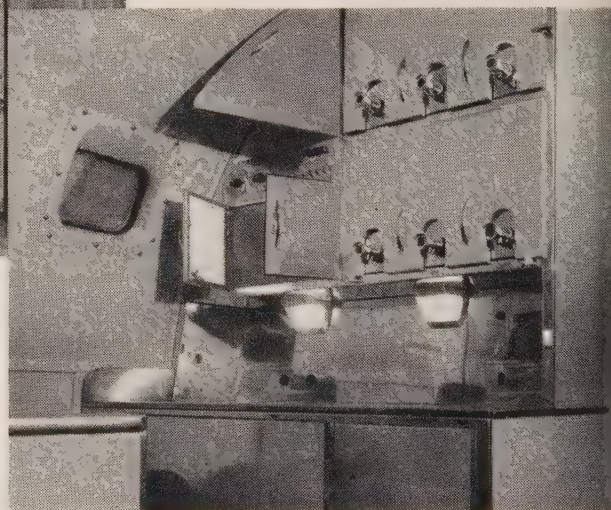
TO INDIVIDUAL AIRLINE REQUIREMENTS



DC-6 and DC-7

LOUNGE UNITS typical of those designed, engineered, and installed by AiResearch Aviation Service for some of the world's leading airlines, including American, Pan American, Swissair, Braniff, KLM, Panagra, CPA and Japan. Berthable and curved lounges are fabricated on a production basis by highly experienced personnel.

GALLEY installation in DC-6, fabricated to customer specifications. All galley and buffet units are made of lightweight materials and can withstand loads up to 12 G's. Equipment may include electric ranges, broiler and oven units, refrigerators, dry ice storage, liquid containers and coffee makers.



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largest four engine transport, insuring an uninterrupted schedule of installations under all weather conditions.

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Your inquiries are invited.



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Helicopter PARADE



SKYWAYS salutes the helicopter in this special issue.

Not just the vehicle, remarkably versatile and useful as it is. But more important, the men whose ingenuity has, in less than 15 years, turned the promise of the helicopter into reality, and who now are going on to find or create new peaks of business utility.

In the ranks of those we honor are the manufacturing personnel, who have diligently tackled a host of unprecedented problems in the design and construction of this new type of vehicle. Out of their always painstaking but often imaginative efforts have come increasing reliability and greater economy, though all of us within the aviation family would concede that the ultimate in these respects is still far off.

Almost every day, however, brings an announcement of some new advance. Progress is so rapid that any survey of the field is incomplete by the time the ink dries on the paper. In bringing you the "parade" of helicopters which follows, therefore, we attempt only to give you a selection that is representative, not comprehensive.

Closely associated with the manufacturers themselves in the development of better helicopters are the men who have done such a magnificent job of pioneering their operation. Transmitting the specialized requirements which they hammer out on the sales front (where the unsubsidized watchword is "profits or else"), and reporting regularly their service experience, the operators have contributed in important ways to the shape of helicopters, as they are today and as they will be in the days to come.

The operators and other helicopter interests banded together in the Helicopter Association of America loom as an increasingly powerful force for good as the group begins its second decade of activity.

SKYWAYS is extremely proud that the Association will use the pages of this publication to report its activities. In keeping with our policy of full and constructive coverage of all segments of business flying, we will bring our readers regularly the important news of this important group.

Business flying has experienced an explosive growth in these ten years, which no short-term fluctuations in the business cycle can halt for long. Helicopters have been in the forefront of this parade, and there is no end in sight to their development possibilities.

We look forward with eagerness and enthusiasm to the new vehicles and new uses that are just over the horizon.



VERTOL 44C

The Vertol 44C is a single-engine, tandem rotor, improved version of the H-21 type helicopter. The 44C is for deluxe executive transport. Other models are the 44B for commercial transport and the 44A for utility, cargo and military use.

Powerplant is the Wright Cyclone 977C9HD-1 with 1,425 brake horsepower at takeoff. Cruising speed is 101 mph. Hovering ceiling with ground effect is 5,000 feet; without ground effect, 3,500 feet.

Fuel capacity is 300 gallons. This permits a range of 362 miles with reserve. Gross weight is 14,000 pounds. Empty weight is 8,655 pounds. Fuel consumption at cruise is 75 gallons per hour. The 600 cubic-foot cabin can be fitted to personal requirements.

Price is about \$300,000. Maintenance is aided with built-in work platforms, steps. Morton, Pa., is Vertol plant site.

ALOUETTE

The Alouette II, world's first production jet helicopter, is a five-place, medium range (345 miles), rotary wing aircraft capable of 110 mph. It is powered by an Artouste IIB-1 400 hp gas turbine engine. Special governing system eliminates pitch throttle coordination required in conventional helicopters.

Service ceiling with 3,300 pound gross weight is 10,500 feet; with 2,425 pound gross, 20,000 feet. Hovering ceiling without ground effect at 3,300 pound gross is 5,250 feet; at 2,425 pound gross, 13,100 feet. Hovering ceiling with ground effect at the two gross weights is 8,200 and 15,100 feet.

Price is estimated to be about \$80,000 to \$90,000. The Alouette, a Sud Aviation product, is being assembled in the U.S. by Republic Aviation's Helicopter Div., at Farmingdale, Long Island, N.Y.



DJINN

The Djinn is a two-place jet-powered helicopter. Powerplant is the Tubomeca "Palouste" turbine compressor which compresses the air to be supplied to the blades.

Rotor has two blades with a free-oscillating hub. Simplicity and lightweight are features of the Djinn. Maximum speed with full load is 81 mph. Maximum takeoff weight is 1,680 pounds; empty weight, 794 pounds. Maximum range with standard tank is 112 miles; endurance is two hours, 15 minutes.

This Sud Aviation model held world altitude record of 27,830 feet. Head office is Paris, France. North American office is New York City.

Uses include a recent photographic mission involving 40 hours flying from a ship. No maintenance was required, and the craft used gasoline fuel.

BELL 47J

The Bell Ranger 47J is a four-place, 200-mile-range helicopter. Powerplant is the incoming 250 hp, VO-435. Maximum speed at sea level is 105 mph.

Service ceiling with 2,565-pound gross weight is 13,560 feet; with 2,019-pound gross, 19,900 feet. Hovering ceiling with ground effect at the two gross weights is 6,000 feet and 12,700 feet, respectively. Fuel capacity is 35 gallons.

Rotor is a two-bladed see-saw type, semi-rigid system, with laminated wood blades. Fuel hub and stabilizer bar. A synchronized elevator is tied directly into the control system to provide greater stability and increased center of gravity travel.

A rotor brake facilitates braking rotors quickly after the engine is stopped.

Price is about \$68,500. Bell Helicopter Corp. is at Fort Worth, Texas.



HILLER 12-C

The Hiller 12-C is a three-place, single rotor, two-bladed, helicopter. It has an enlarged canopy which provides increased loading capacity. Powerplant is a 210 hp Franklin engine.

Cruising speed at 85 percent power is 76 mph. Maximum range is 310 miles with an endurance of 4.4 hours with 64 gallons of fuel (including two auxiliary tanks). Standard model has 28-gallon fuel tank.

Service ceiling is 10,000 feet, or, supercharged, 14,100 feet. Hovering ceiling with ground effect is 2,600 feet, or, supercharged, 6,900 feet. Gross weight is 2,500 pounds; empty weight, 1,737 pounds.

The model serves a variety of uses including advertising, exploration, agricultural pest control, fire patrol and forestry work. Price is about \$47,750.

Hiller is at Palo Alto, Calif.

SIKORSKY S-58

The Sikorsky S-58 is a single rotor, up-to-12-places plus pilot and co-pilot, helicopter. Powerplant is Wright Cyclone 89C9HE-2 with 1,525 brake horsepower at takeoff. Normal cruise is 101 mph.

Gross weight is 13,000 pounds. Empty weight is 7,560 pounds. Hovering ceiling with ground effect is 4,500 feet; without ground effect, 2,300 feet.

Fuel capacity is 198 gallons. Range is about 190 miles. With optional tank, fuel capacity is 290 gallons, increasing range to about 290 miles. Maximum rate of climb at sea level is 1,150 fpm.

The model can be used for passengers, freight or load lifting with hydraulic hoist. Ease of maintenance is considered foremost in basic design of the S-58.

Sikorsky Aircraft, Division of United Aircraft Corp., is at Stratford, Conn.





BRISTOL 192

The Bristol Type 192 turbine-powered twin-engine helicopter is the largest military helicopter produced in Europe and is in production for the Royal Air Force. Civil application of this model is similar to the Vertol 44C. It can be used for freight, passengers or a combination. Powerplants are Napier Gazelle series 2. Top single-engine performance reported.

Maximum speed is 138 mph. Power characteristics of the turbine permit the helicopter to cruise at maximum speed. Each rotor has four blades.

Service ceiling is 13,250 feet. Hovering ceiling without ground effect is 8,000 feet. Fuel capacity is 560 Imperial gallons. Depending on use, range varies from about 150 miles, with some 5,750 pounds aboard, to about 713 miles, extra tanks, no load.

Bristol is at Filton, England.

BRISTOL SYCAMORE

The Bristol Sycamore Type 171 is a four-five-place, single rotor helicopter. Quick changes from one role to another are possible . . . from passenger to rescue. As an aerial crane the 'copter's fuselage has strong points stressed to 1,600 pounds permitting loads to be slung externally below the fuselage. Electrical and manual quick-release cables are installed and led to a position near the pilot.

Power plant is one Alvis Leonides 524/I piston engine of 520 brake horsepower. Maximum speed is 127 mph.

Service ceiling is 15,500 feet. Hovering ceiling without ground effect is 2,700 feet. Maximum range is 372 miles. Fuel capacity is 89 Imperial gallons. Gross weight is 6,500 pounds; empty weight 4,129 pounds.

Bristol Aircraft Ltd., Bristol Aeroplane Co. Ltd. subsidiary, is at Filton, England.



CESSNA YH-41

The Cessna YH-41 is a four-place model with a 290-mile range. Powerplant is a Continental FSO 526A, 270 hp. At present, it is designed primarily for the military market. Civil designation is the CH-1B.

Maximum sea level speed is 122 mph. Cruising speeds range from 100-120 mph. Service ceiling with 3,000-pound gross weight is 11,000 feet; with 2,600-pound gross, 15,000 feet. Hovering ceiling without ground effect at maximum gross weight is 6,500 feet. Rate of climb at gross is 990 fpm. Range is 290 miles with endurance of just under four hours.

Fuel capacity is 60 gallons. Empty weight is 2,050 pounds. Main rotor has two blades. Craft can be adapted to aerial photography, surveying, mapping work.

The Cessna Helicopter Dept., is located at the Cessna plant, Wichita, Kan.

BRANTLY B-2

The Brantly B-2 is a two-place, single rotor, three-bladed, helicopter. Powerplant is a Lycoming O-340 A1A with Brantly Cooling System and Clutch. The experimental helicopter has been flown at 4,000 feet with 120 mph IAS.

Because substantiation of the engine of the experimental model required operating at 110 percent maximum continuous speed for 12 and one-half hours, the helicopter drive system was subjected to a higher maximum speed and a 50-hour longer running period than would have been required for substantiation of the helicopter itself.

Range is estimated at 270 miles. Approximate performance figures include a cruise speed of 90 mph; rate of climb at sea level, 1,200 fpm; and rate of descent in autorotation at sea level, 1,400 fpm.

Brantly Helicopter is at Frederick, Okla.



FAIREY

The Fairey Ultra-Light helicopter is a two-place, jet-powered model. Powerplant is the Blackburn Turbomeca "Palouste" compressed air generator.

Small, light, extremely maneuverable, the Fairey Ultra-Light helicopter can land on a truck bed. It is being developed for both military and civil uses . . . high altitude surveying, communications, crop spraying, transporting light loads in undeveloped and mountainous areas.

The helicopter can be carried complete with pilot, fuel, spare parts and provisions on a standard three-ton truck which also functions as a "deck" for landing and take-off. The craft has made more than 70 take-offs and landings from a ship's deck in winds to 62 knots with deck pitching 14 degrees.

The Fairey Aviation Co. is located at London, England.

DOMAN LZ5-2

The Doman LZ5-2 is an eight-place, four-bladed, single rotor type helicopter. It is approved for civil and military use in the United States and Canada. Speed for best range is about 80 mph.

Four-bladed rotor uses the unique Doman developed suspension resulting in substantial vibration reduction. Powerplant is a 400 hp Lycoming.

Service ceiling with 5,200 pounds is 10,000 feet; with 4,400 pounds, 14,600 feet. Hovering ceiling with ground effect at take-off power is 4,000 feet.

Fuel capacity, main tanks, is 76 gallons; with auxiliary tanks, 119 gallons. Range is 230 miles on main tanks and 380 miles with auxiliary tanks.

Safety features include high tail rotor stability at low rpms.

Doman Helicopters is at Danbury, Conn.





OMEGA SB-12

The Omega SB-12 is a four-bladed, single rotor helicopter with two engines. It can carry four passengers plus the pilot or utilize the space beneath the rotor to carry up to 1,000 pounds of cargo.

Full gross weight is 4,560 pounds. This does not permit straight and level single-engine flight, but will permit slow descent and easy landings. The passenger version may carry 200 pounds of baggage with full passenger load for a range of 200 miles.

The model is designed with low cost parts and assemblies, maintenance accessibility in order to make the helicopter operation not much more expensive than its fixed-wing counterpart. Designer believes that price can be held down in the designing and that high production volume will lower price level further. It is undergoing CAA tests.

Omega Aircraft is at New Bedford, Mass.

BENSON B-8M

The Benson B-8M Gyrocopter, successor to the B-7M model, is powered by a 72 hp McCulloch 4318E engine. Fuel capacity of the single-engine combination autogyro-helicopter is six gallons.

Gross weight is 500 pounds. Empty weight is 247 pounds. Rotor has two blades. Craft has, also, pusher type, two-bladed propeller. Propeller is Banks-Maxwell, Birch wood, model 45-24.

Controls include cyclic stick, but eliminated is the collective stick of the true helicopter. Throttle is a twist-grip on the left handle-bar. Single brake is in the nose wheel.

Service ceiling is 16,500 feet. Range is 100 miles, or an endurance of one-and-a-half hours. Cruise speed is 60 mph.

Both B-7M and B-8M models can be purchased in do-it-yourself kit form for about \$1995. Benson Aircraft Corp., Raleigh, N.C.



GYRODYNE XRON-1

The XRON-1 Rotorcycle is a one-place helicopter. Powerplant is the German Porsche 1600cc helicopter engine. The single rotor has two blades.

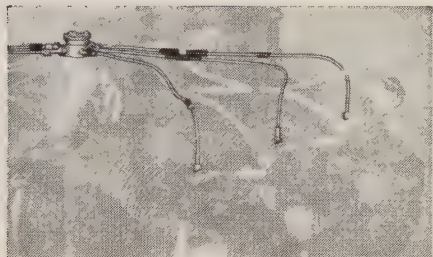
Service ceiling is 10,400 feet. Hovering ceiling without ground effect is 2,800 feet. Range in normal loading conditions is about 26 miles. Fuel capacity is two gallons. Craft has tricycle landing gear. Gross weight is 645 pounds; empty weight 381 pounds. Brake horsepower at 4,000 rpm at sea level is 60. Horsepower after cooling is 55.

Cruising speed at sea level is about 52 mph. Maximum speed at sea level is 73 mph. Vertical rate of climb at sea level is 945 fpm. Maximum rate of climb at sea level is 945 fpm. Price is about \$5,000.

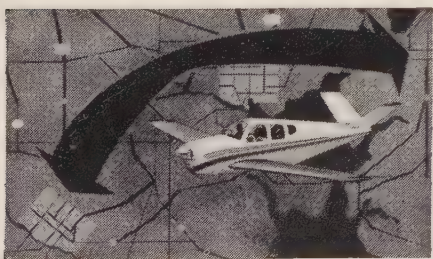
Manufacturer of the experimental model is the Gyrodyne Company of America, Inc., Flowerfield, St. James, Long Island, N.Y.



Get there **FAST** in a '58 Beechcraft Bonanza
 ... **FIRST** with fuel injection



'58 BONANZA'S NEW ENGINE
 WITH FUEL INJECTION



GO FARTHER—FASTER

The four-place *Beechcraft Bonanza*
 RANGE — up to 1,060 miles nonstop
 SPEED — up to 210 miles per hour

For information about the *Bonanza* and the finest
 leasing and financing plans in aviation, see your
 Beechcraft distributor or dealer, or write Beech
 Aircraft Corporation, Wichita 1, Kansas, U. S. A.

Tomorrow's power — fuel injection — is yours today in the
 New Beechcraft Bonanza for '58! For the first time in commercial
 aviation, the magic of fuel injection gives smoother performance
 and 200 miles per hour cruising speed with the
 Bonanza's new 250 horsepower engine.

Now you can go faster, get there earlier, get more done than
 ever before. And you'll enjoy the supreme quiet and comfort
 of the Bonanza cabin as you watch the miles hurry by.

The '58 Beechcraft Bonanza is at least 30 miles per hour faster
 than any other single-engine commercial airplane.
 This rugged and right airplane uses less
 fuel than your family car, and
 no airplane is easier to fly!



Beechcraft



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Helicopter OPERATIONS

"The deep canyon walls of Korea to me resembled the tall buildings of a big city and the impenetrable mud seemed like the sticky morass of surface traffic." That's how Hal Conners, general manager of Helicopter Air Lift, Chicago, got the inspiration for his enterprise.

"Group lease" is a promising answer for companies which need executive helicopter transportation, but not to an extent that will justify buying machines of their own.

Fifty leading Chicago firms have found this to be so. They are using the services of Helicopter Air Lift, a division of Skymotive, Inc.

Hal Conners, General Manager, got the idea in Korea, and was given a go-ahead by his boss, Brig. Gen. John P. Henebry, in 1955.

Conners did not plan a scheduled operation, since a good helicopter airline already was serving Chicago. Instead, he found, "when you pick up Mr. Businessman at his door and transport him to his office over the slow-moving traffic below, you are striking a responsive chord."

Using three Bell 47H helicopters, HAL offers service to 60 downtown and industrial heliports in metropolitan Chicago. It can reach almost any part of the area in 10 to 15 minutes, compared to an hour fighting ground traffic (200,000 passenger vehicles pass through Chicago streets in one day).

Prestige of individual ownership is retained for the participating companies by equipping the helicopters with changeable signs that identify the rotorcraft with the customer using it at the time.

Most of the firms using the service lease the helicopters for 25 or more flight hours annually, under contracts that are non-cancellable. Rates are \$75 an hour for companies signing up to take 25 hours; \$70 an hour for 50 hours; and \$65 an hour for 100 or more hours. The latter figure means that two passengers can ride for 36 cents a seat-mile.

In addition to executive transportation, companies are using the service for priority cargo, and as a customer

relations tool. For the latter purpose, many companies present passengers with engraved cards making them members of the Whirlybird Club, or take pictures of the flight.

Conners says that most companies feel the higher cost per mile for helicopter travel is compensated for by the time saved.

HAL offers not only group-lease, but "helicab" service between airports, suburbs, and hotels. It likens this operation to taxis, and no more competitive with scheduled helicopter airlines than taxis are with buses.

Safety Factor

HAL is jealous of its fine safety record, selecting flight routes carefully and turning down any company which has inadequate facilities or location for safe landing and approach. Each pilot gets a 90-day check. Company radio is in contact at all times with pilots, and with satellite bases where machines park and fuel.

Maintenance time on the fleet is 1.6 hours for each hour of flight. Because of the good safety record, insurance rates are believed to be the lowest in the business.

Although HAL hopes some day to be a nationwide operation like Hertz or Avis, Conners is not reluctant to offer some suggestions to others planning to enter the lease-taxi business:

1. Get an Air Carrier-Air Taxi Certificate. Let the CAA know everything that goes on in your operation.
2. Join the National Air Taxi Conference.
3. Set up a CAA and factory-approved maintenance station.
4. Put in a good bookkeeping and cost accounting system.
5. Get out and sell.

Other helicopter charter services specializing in executive transportation include:

Cheasapeake and Potomac Airways, Baltimore; Ohio Valley Airways, Cincinnati; Helicopter Airway Services and Whirl-Air of Detroit; Execuplane of White Plains, N.Y.; Miller Aviation of Pittsburgh; and Pilgrim Helicopter Service of Washington, D.C.

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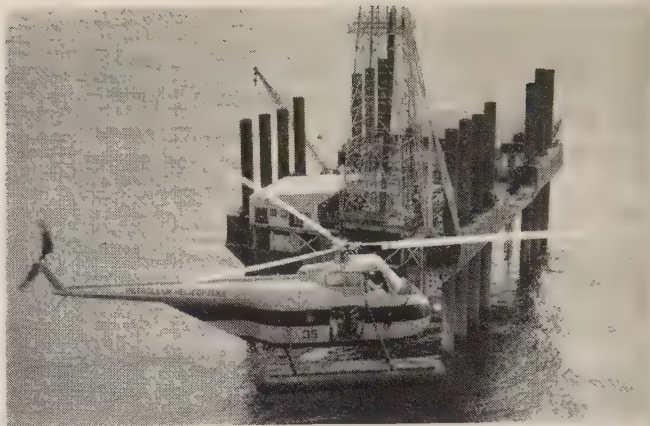
- ☐ Please send application blank for new aviation credit card.
- ☐ I have Standard Oil Company of California automotive credit card number _____. Please send me an aviation credit card.

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Visibility from Rick Helicopters' HRP-1 surplus Piasecki is specially good in this case. It's not the visibility, however, it's the facility of loading, unloading and maintenance that's the aim. A Nike missile is carried for the Army at Fort Baker, Calif., by the naked bird.



Offshore oil, one of the United States' most valuable natural resources, is a prime beneficiary of the helicopter. Petroleum Helicopters, Inc., of Lafayette, La., operates 31 Bells, seven S-55 Sikorskys, two S-58 Sikorskys plus an Aero-Commander and Helio-Courier.

What Can't A Helicopter Do?



Aero Service Corporation of Philadelphia surveyed 16,000 miles in 80 days with an S-55 helicopter, using a double shift of crews and flying from four in the morning until ten at night. Here a transmission is changed in the field with lumber borrowed from a drilling crew in the area, since there were "no trees within a thousand miles."



To the rescue! Helicopter Corporation of America, a Santa Monica firm, flies automobile accident victims to the hospital in a Bell helicopter.



Dusting a cranberry bog in the Cape Cod area is one of the uses Wiggins Airways makes of the helicopter. In tree-surrounded fields such as this one, the 'copter is able to perform a job unequalled by other craft.



Remote spots in the wilds of Canada are made easily accessible to prospectors by the helicopter. Spartan Air Services, Ltd., of Ottawa made this Bell 47 available.

Offshore Airlift: Maintenance the Key

It was a typical November morning at Humble's Grand Isle heliport; the air was clean and cold. A slight, erect figure in a black overcoat stood on the asphalt apron of the hangar. With his bushy gray mustache, he might have been mistaken for a college professor.

Silently, he scanned the horizon. In the distance, drilling rigs sprouted like water plants from the blue water of the Gulf of Mexico. Inside the hangar, mechanics moved about their mid-morning duties.

Outside, half a dozen men carrying suitcases passed before the visitor on their way to a red-and-white striped helicopter on the far side of the landing ramp. Leading them was a pilot, marked by his bright-yellow Mae West, clipboard and mail sack. Other men were crawling from a helicopter that had just nestled down on its silver pontoons, its rotors still spinning. Already it was being refueled with high octane gasoline. In a faint Russian accent, the visitor broke the silence.

"This," he said quietly, "is the outstanding helicopter operation of its type in the world today."

The man wasn't just talking through his narrow-brimmed, black fedora. He was the great aviation pioneer, the man who built and flew the world's first really workable helicopter. This man was Igor Ivanovich Sikorsky.

In civilian passengers carried, Humble's 'round-the-clock helicopter ferry operation in Louisiana bows to none.

Humble's airlift to its offshore drilling rigs set new highs last year. In 1957, its helicopters carried 159,776 passengers. There were 63,034 flights, a total of 12,345 injury-free flying hours.

In 1956, the helicopters carried 85,185 passengers. There were 38,558 flights, a total of 8,498 injury-free flying hours.

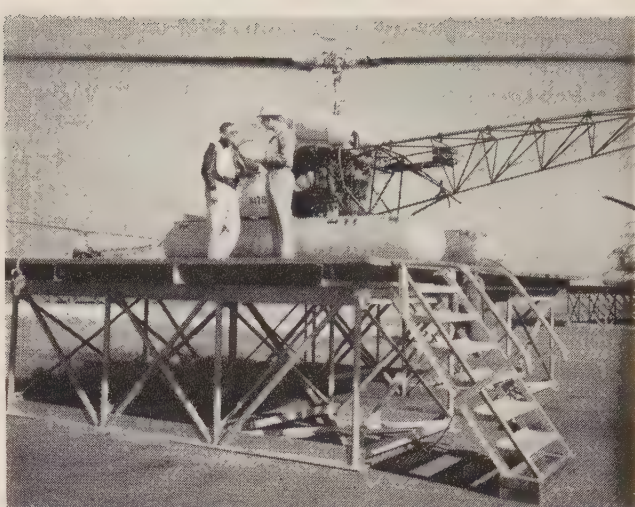
The Humble whirlybird flock now numbers 15. There are three 12-passenger Sikorsky-58's, six eight-place S-55's and six three-place Bell helicopters. In harness together, the two larger classes of ships are the workhorses of the ferry service.

If the S-58 and S-55 are the workhorses, the little Bell is a versatile pony. In three hours of Bell-hopping, one can cover a route that would take 10 to 12 hours by boat. In a Bell, the special sensation of flying in a helicopter is accentuated. You are almost completely enclosed in a clear plastic bubble. The takeoff is quick as a hiccup; you want to grab something—and usually do. One man said it is "like riding a pogo stick in a giant fish bowl."

The Grand Isle helicopter operation is a pioneer effort in rotary wing aviation. For the first time, the helicopter is performing a large-scale mission that is economically justified. It has lived up to its advance billing by operating just like an offshore bus line.

Schedules are strict. Helicopters take off at times like 6:29, 7:05, and 8:15, return at times like 8:23, 9:18 and 1:22. Once, just to keep the airlift on schedule, C. M. Scholes, manager of Humble's aviation transportation department, motored all night from Houston to Grand Isle to deliver a tiny gasket and have an S-55 safely in the air the next morning. "Gasket wasn't worth three cents," Scholes remembers.

To the men who work in the Gulf, the long, tortuous boat trips to offshore locations are good riddance. One trip, four and one-half hours by boat, is only 35 minutes by S-55. In the S-58, it is only 30. The oil worker remembers the green-gilled feeling called seasickness. He



Bell helicopter, with 400 pound payload, is baby of three classes used at Grand Isle. They nest on platforms to keep tail rotors clear. Both Bells and Sikorskys are operated for Humble Oil by Rotor-Aids, Inc., of Ventura, California.

remembers, too, ten days at a stretch on the LST or platform—being away from home and family.

Three years ago, a storm might have meant accident and long delays reaching a doctor. During last season's Hurricanes Audrey, Bertha and Esther, however, crews on Humble rigs were hurried to shore with time to spare. When the storm hit, the whirlybirds, with wings removed, were huddling together inside the hangar like so many weathered-in sparrows.

Humble helicopters at Grand Isle are piloted and maintained by 55 men working for Rotor-Aids, Inc., a helicopter contract service headquartered in Ventura, California. A pilot works an eight-hour shift four days, an eight-hour shift four nights and then is off four days.

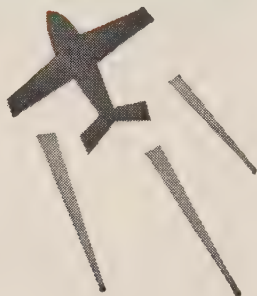
To pilot a helicopter for Humble, you need a commercial pilot's license with helicopter rating and a minimum of 750 hours of helicopter time.

The helicopter pilot navigates visually, by the landscape, radio and compass. At Grand Isle, they know the Continental Shelf like their own backyard—only on three occasions in two years have pilots had to turn back because of faulty navigation. That's not bad when you consider that average Gulf visibility is seven to ten miles, that some of the rigs sit as far away as 35 miles.

Fog is the worst enemy. Military pilots boast that the helicopter can fly "even when the birds are walking," but bad weather clips the wings of the Humble whirlybird fleet. Anything under three miles visibility and a 500-foot ceiling puts the tortoise-like boats back into temporary service. That happens about once a month from October through March.

In air transport, safety is the aim. In no case is a load limit exceeded: an extra 'copter is sent along to carry that extra man. A crewman always stands by with a fire extinguisher when a helicopter cranks up. All craft, of course, are equipped to set down on land or water. The S-58's carry a specially-designed amphibious gear which allows landing on rubber floats or retractable wheels. Landings with power off are practiced regularly. Extra fuel is staked out on a lonely beach—the half-way mark to a rig 35 miles away.

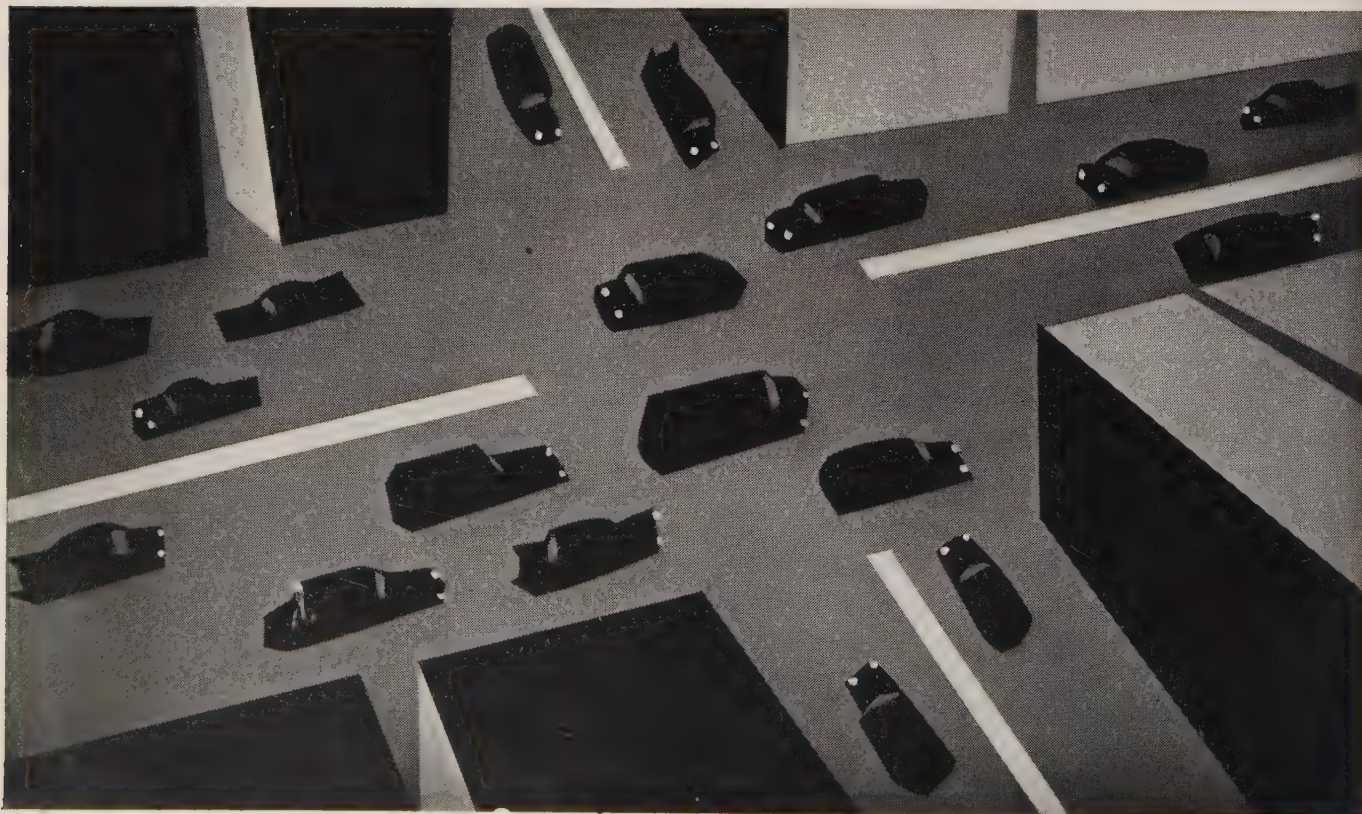
Of all the airborne craft, the helicopter still owns the best safety record. A major slice of the credit for an outstanding record goes to the mechanics of the maintenance group. In 1956 they kept four of Humble's six S-55's available 100 per cent of the time; five of them available 87 per cent of the time. All six were available 17



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per cent of the time.

Painstaking mechanical checks made this possible. Every craft undergoes a thorough examination daily. After 10 flying hours, it is wheeled into the hangar. There it is checked from stem to stern. The main checklist contains 57 items. Parts are replaced: maximum use of the helicopter's components is not the goal. An engine analyzer detects motor flaws, like a cardiograph listens for a heart murmur. Extra engines, all built up, stand ready. When the helicopter goes back into service, it is practically as good as the day it left the factory.

Engines are recommended for complete overhaul at 600 flying hours. Humble has it done at 480. The S-55 engine, 600-horsepower Pratt-Whitney, is trucked all the way to Houston. There, more manhours are spent rebuilding the engine than it spends in the air. The S-58 engine will return to a New Jersey factory for overhaul. All told, the Humble helicopter spends five and one-half hours on the ground in checking and repair, to every one in the air.

The helicopter, with all its talents, is not perfect. Even Lindbergh's 1927-vintage "Spirit of St. Louis" was faster and rangier than any helicopter Humble owns today. But for specialized tasks such as at Grand Isle, it's hard to beat an "eggbeater."

Aviation chief Charlie Scholes realizes this better than most. "This thing is no toy," he says. "We are carrying the life's pulse of our operating and supervisory personnel." Mr. Sikorsky is right: "It's the outstanding operation of its kind in the world."

'Copter Business Owners

Some four or five years ago there were three company-owned helicopters, reports the Helicopter Council of the Aircraft Industries Assn. Now there are more than 50. Not a startling figure, but certainly indicative of a trend to rotor equipment.

A variety of reasons is given for owning helicopters. Most popular reason, of course, is the facility of having the aircraft at the office door ready to fly to other office doors with no waste ground time.

A partial list of firms owning helicopters for their own use is Blakely Oil, Phoenix, Ariz.; Bradford, Laws and Weatherly of Hollister, Douglas Aircraft Co. of Santa Monica, English Mountain Ranch of Grass Valley, A. L. Newman of Kelseyville, Northrop Aircraft, Inc. of Hawthorne, Midwood Manor of Anaheim, all Calif.; Colorado Interstate Gas Co., Colorado Springs, Colo.

Frouge Construction Co. of Bridgeport, Roger Sherman Transfer Co. of East Hartford, both Conn.; Arthur V. Davis, Miami, Fla.; Robert W. Lynn of Boise, James E. Hall of Elk River, both Idaho; Phillip Armour, Fastener Corp., Motorola Inc., Radio Materials Corp., United Manufacturing Co., all Chicago, Ill.; California Co., New Orleans, La.; American Metal Products Co., Freuhauf Trailer Co., both Detroit, Mich.; Suburban Propane Gas Corp. of Whippany, Arthur Godfrey Enterprises of Hasbrouck Heights, both N.J.

Anaconda Copper Mining Co., Grants, N.M.; Aeroflex Corp., New York Trap Rock Corp., Port of New York Authority, all of New York City, and Grumman Aircraft Engineering Corp. of Bethpage, L.I., Sperry Gyroscope Co. of Great Neck, L.I., all N.Y.; Burlington Mills, Greensboro, N.C.; Smith Pace Pipeline Corp. of Camp Hill, Westinghouse Corp. of Pittsburgh, both Pa.

Continental Oil Co., Humble Oil and Refining Co., both Houston, and C. G. Glasscock Drilling Co. of Corpus Christi, Magnolia Petroleum Co. of Dallas, T. W. Murray of San Angelo, W. T. Waggoner Estate of Vernon, all Texas; Allen K. Platt, Chelan, Wash.; L. N. Koutnik,

Manitowoc, Wisc.; J. C. Sproule of Calgary, and Uranium Corp. of British Columbia Ltd. of Vancouver, both Canada.

Another wide use of the 'copter is for agricultural purposes. These company-owned whirlybirds, though operated frequently on charter basis, serve an important element of aiding the farmer or rancher. Kern-Copters, Inc., of Bakersfield, Calif., is owned by Miss Elynor Rudnick, a woman unique in her business. She is a former officer of the H.A.A.

Probably one of the most unique jobs handled by a service was that done by Chicago Seaplane Base, Inc. On the golf course, pilot George Snyder transported famed players Lloyd Mangrum and Dr. Cary Middlecoff from the tee-off to the green. Another odd job was replacing the horse for Paul Butler, Oak Brook Polo Club president, while he played the game. Snyder adds that more normal operations include flight instruction, photography, power and gas line patrol and executive transportation.



George Snyder waits in helicopter to transport golfers. Lloyd Mangrum watches as Dr. Cary Middlecoff plays.



No picture story of the work of the helicopter would be complete without one showing a whirlybird carrying that most precious cargo—cheesecake. (P.S.—A Hiller 12-C.)

Scheduled Copters Aid Business Fliers

Scheduled helicopter services are helping to pioneer 'copter travel as accepted, everyday means of travel for business people the world over.

Three lines in the United States . . . Los Angeles Airways, Chicago Helicopter Airways, New York Airways . . . and one international line in Europe . . . Sabena, based at Brussels, Belgium . . . are expanding and helping to make this still rather unique means of transportation a familiar and routine thing to the thousands of persons who fly for business, many in their own business aircraft.

In May, 1947, Los Angeles Airways became the world's first helicopter airline with a CAB-granted temporary Certificate of Public Convenience and Necessity. Under the guiding hand of president Clarence M. Belinn, LAA inaugurated scheduled passenger service Nov. 22, 1954.

By 1960 Belinn anticipates operating multi-engined, jet-turbine, 20-passenger 'copters which can operate under instrument weather conditions.

New York Airways, Inc., certificated by the CAB on March 13, 1952, to become the second line in the U.S. approved for passenger service, will be the first to operate tandem rotor helicopters when it starts operating the Vertol 44B model next month. NYA president, Robert L. Cummings, Jr., expects the 15-passenger aircraft to result in resumption of higher frequency service to Manhattan. The new five-plane fleet will cost \$2,000,000 with spares.

By the end of 1957, New York Airways had flown more than 2,013,484 scheduled miles, 34,545 revenue hours and carried 144,551 scheduled passengers.

Chicago Helicopter Airways, Inc., "enjoyed early and immediate acceptance" after it started operations Nov. 12, 1956. Youngest of the domestic scheduled lines, CHA entered its second year of operation with 86 daily flights capable of carrying 871 persons. John S. Gleason, Jr., president, pointed out that this is an increase of 330 percent in schedules and a 520 percent service increase over January, 1957.

More important to Gleason than just impressive figures is the fact that the company is selling acceptance of helicopter transportation as well as the need for its continued expansion. It is predicted by the president that CHA will carry its 100,000th passenger in early June which will be the airline's 20th month of passenger service.

The only international helicopter service is operated by Sabena Belgian Airlines from its main base at Brussels, Belgium. Jules Nâomé, assistant director of Sabena Helicopter Operations, described the helicopter service and Sabena's role as flight training center.

Scheduled service started in 1953 as the answer to the short-haul feeder line service. The Sabena-operated flying school is state-owned. Helicopter training is in the Sikorsky S-58.

Last year Sabena with a fleet of eight new S-58's flew its 100,000th passenger. On a flight from the Brussels base the epitome of the European peasant sat in one corner. He held a basket of food . . . no mistaking the long loaf of bread. He smiled a calm greeting as other passengers took seats. In the middle seat an American tourist with camera slung over his shoulder excitedly announced that this was his first helicopter flight. The changing expressions on his face were interesting to watch as the 'copter lifted from the ground and headed for the city heliport. When the short hop was completed, there was nothing but enthusiasm for helicopter flying.

As Nâomé pointed out, 'copter service is accepted by the European flying public as routine. The calm of the peasant was evidence of the statement.



NEW VERTOL 44B of New York Airways lands at 30th Street heliport, Manhattan, S.S. Liberté is outward bound in the background.



A WET MIDWAY Airport is background for Chicago Helicopter Airways' S-58. CHA enplaned 55,314 customers in first year, '57.



PASSENGERS BOARD Los Angeles Airways S-55 at L.A. International Airport for Santa Ana, nearby southern California city.



Miniature Precision Bearings executives—Leo Vogel, Purchasing Agent; William M. Scranton, Executive Vice President; Richard I. Kern, General Marketing Manager, and Horace D. Gilbert, President—at the start of a flight from snow-covered Keene Airport.

for safety...dependability...maintenance ease...economy

IT'S HARD TO BEAT THE Apache



Horace D. Gilbert

Miniature Precision Bearings, Keene, N. H., bought a twin-engine Piper Apache 10 months ago. Today, the plane has flown over 105,000 miles, transporting company executives swiftly and conveniently between Keene and points as scattered as Montreal and Miami.

Horace D. Gilbert, President of the company which manufactures more than 500 types of miniature ball bearings, says: "We find that the MPB plane substantially reduces our travel and delivery time. Just as important, the Apache enables us to get technical assistance to our customers, often in a matter of a few hours."



Example: The trip from Keene to New York, frequently made by MPB executives, takes six hours or more by car or train; by Apache, just a little more than one hour. MPB executives and technicians also appreciate the advantage of setting their own flight schedules, flying direct to smaller, more convenient fields than those served by airlines.

Stuart Jones, Miniature Precision Bearings' pilot, sums up his professional satisfaction with the Piper twin: "The plane's twin engines give us more dependable all-round operation with a high safety factor, and it's hard to beat the Apache's easy maintenance and low operating cost. My passengers like the Apache's speed and comfort, too."



Stuart Jones

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Helicopter PEOPLE

PEOPLE who will have an important impact on helicopter developments during the coming year include prominently the new leaders of the Helicopter Association of America.

Richard D. Eccles, vice president of Stockton Helicopters, Stockton, Calif., was elected president of the association, succeeding Carl Brady. Ralph Beathe, manager of Dean Johnson, Inc., McMinnville, Oregon, is the new secretary; and Robert Trimble, manager of Aetna Helicopter's, Inc., Etna, Calif., will hold the treasurer's pursestrings.

Eccles and Trimble worked together five years ago in New Guinea, when both flew for World Wide Helicopters, Ltd. Eccles' operation at Stockton flies four Bell 47's.

Beathe's company operates five Hillers in Alaska and Oregon. Work in the Territory includes hauling of mining equipment and core drills for prospecting, while Oregon operations take in dusting, spraying, tree seeding and 60-hour training course.

BIG WHEELS (or should we say rotors) who rolled away from the HAA tenth annual convention with new inspiration and ideas on the helicopter future included:

E. E. GUSTAFSON of Sikorsky predicts that "1958 may be remembered as the year of the true development of the commercial helicopter." Existing models have been improved, new designs are under development, and there

are many models to choose from, including turbo-jets.

Last year in the commercial field Sikorsky was manufacturing the S-55 and some S-58's. This year the company is still making the S-55 and there is a larger production of the S-58. In 1952 Sikorsky entered the commercial market with the delivery of the first S-55's in the Los Angeles area. Today the S-55 and the S-58 are being used in large, heavy hauling jobs and Sikorsky pilots are pioneering in the use of the helicopter for the construction of oil lines. Oil companies, doing exploratory drilling in inaccessible areas, have proved the economy of eliminating road building entirely and using the helicopter instead for all transportation and hauling.

An unusual helicopter operation recently involved the planting of 50-foot telephone poles in prepared holes by helicopter. Using the Sikorsky S-58, 200 poles were erected in 7½ hours of flying time within 2½ days, in comparison with 65 days that would have been required to do the job packing in by mules and erecting the poles manually.

Continual improvement is being made in the S-58, and the CAA has recently approved a new gross weight for the helicopter of 13,000 pounds, a 300-pound increase.

Future Sikorsky plans include the turbine powered S-62 with partially retractable landing wheels and a completely amphibious hull. Using 85% of the component parts of the S-55, the S-62 will be powered with either the T-53 or



F. H. KELLEY
Republic



E. E. GUSTAFSON
Sikorsky



FRED ROSCOE
Bell



H. W. YOUNG
Helicopters, Inc.



J. S. RICKLEFS
Rick Helicopters



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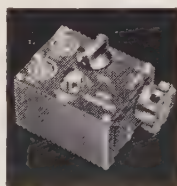
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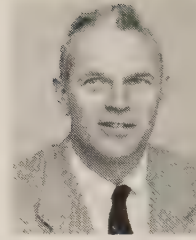
SERGEI SIKORSKY
Sikorsky



HARRY MITCHELL
Bell



RAY CHAISSON
Port of N. Y.



E. W. WIGGINS
Wiggins Airways

the T-58 and will probably be available commercially when the powerplant is available. Also under development is a twin-powered helicopter.

FRED ROSCOE, reviewing the status of the different Bell models, says: "The 47G, the old faithful, is still going strong . . . The 47H was our first effort at the executive helicopter. Hal Conners bought our last two." The 47G-2, with the 240 hp. Lycoming, is one of the most versatile of the current production helicopters.

The Bell H-40, the first helicopter specifically designed for turbine power, is now undergoing development and tests, and in the future Bell is looking toward a convertiplane, linking the short range utility of the helicopter with the speed of the long range airplane.

HERSEY YOUNG of Helicopters, Inc., Denver. The first commercial operator to land on top of Pike's Peak, Hersey has done extensive mountain and high altitude work, flying rescue and search missions, survey work, photographic flights and has pioneered the testing of TV signals by helicopter. Negotiations are now progressing for the establishment by Helicopters, Inc., of the first air express helicopter scheduled operation in the Rocky Mountain region.

"RICK" RICKLEFS, president of Rick Helicopters, Inc., of San Francisco. The company was founded by Ricklefs in 1948. Three years later he purchased the helicopter division of Alaska Airlines, Inc., set up another corporation called Alaska Helicopters, Inc., and by 1953 had become the largest commercial operator of helicopters in the world, both from the standpoint of the number of machines operated and from the standpoint of gross business.

SERGEI I. SIKORSKY, son of Igor I. Sikorsky, with the sales department of Sikorsky Aircraft. Among his other accomplishments, Sergei is an artist and glider pilot. Sergei's description of his father's conception of the flying crane is significant, for Igor Sikorsky's ideas have a way of coming true:

In the thousands of years that man has been transporting things, the thing which could be transported has always been limited by two factors: weight and size. Today the helicopter, which within its weight limitations is able to carry beneath its fuselage articles of any size without interference of earthbound obstructions, has removed one of the two limiting factors in the transportation picture. With a helicopter, size no longer matters. This is the first major break-through of the size-weight limitation in the thousands of years of transportation.

It is entirely likely that within the next few years, powerful helicopter flying cranes will be built capable of carrying many tons beneath the aircraft. Such machines would revolutionize many industries. For example, in the housing industry each house is erected individually on the spot where it is to rest. An automobile constructed by the same method would cost many thousands of dollars. With flying crane in operation, houses could be mass produced as cars are today, with enormous savings resulting. Once a house was constructed at a central factory, it could be transported as a complete building beneath a flying crane and deposited on the desired site. Utilities could be connected and the house would be ready for occupancy. Resulting savings might be 50% of the price of individually built houses. This is but one of the ways the flying cranes could revolutionize American industry.

RAY CHAISSON, chief pilot for the Port of New York Authority. Ray started helicopter training in January 1948, at New England Helicopter Service at Hills Grove, Rhode Island, and has been flying helicopters ever since. Before his present job he flew survey work in Alaska (he's an avid Alaskan enthusiast), and flew with Chicago Helicopter Airways, for the U.S. Geological Survey in conjunction with the Atomic Energy Commission, and with Inter-American Geodetic Survey in South America. He currently heads the flight operation for the Port Authority, which has two Bells used for staff movement, photographic and public relations work. Twelve heliports are located at bridges, tunnels and rivers within the jurisdiction of the Authority.

E. W. WIGGINS of Wiggins Airways near Boston. The first fixed base operator in New England (he began fixed wing operation 27 years ago), Wiggins started in the helicopter business 10 years ago and now operates four Bells. Unlike many operators who spread an organization over a large territory, Wiggins continues a local New England operation. He started in 1947-48 dusting and spraying the cranberry bogs in Cape Cod and still does a large amount of agricultural work in addition to public utility, patrolling, photography and other types of helicopter flying.

STEVE TREMPER reported Vertol's progress in the commercial helicopter field since last April 10 when the Model 44 commercial version of the Military H-21 received CAA certification. The Model 44A is a utility version designed to carry 19 passengers or cargo with a 600 cu. ft. capacity. Model 44B is equipped with 15 airline type seats. Model 44C, the executive version, is equipped with lounge, refreshment bar and other luxury appointments.



H. S. TREMPER
Vertol



A. W. B. VINCENT
Hiller



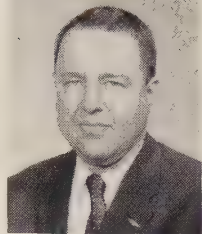
D. R. MOCKLER
A.I.A.



R. L. SUGGS
Petroleum 'Copters



HAL CONNERS
Skymotive Chicago



JACK LEONARD
Cessna



BILL BOEING
Aero-Copters



C. W. MOORE
CHI Airways



J. G. TOWNSEND
Spartan



J. A. ROBERTS
Spartan

The twin-rotor Vertol 44 is the largest, most powerful commercial helicopter on the market. Cruising speed is 88 knots. Emergency flotation gear and amphibious floats enable it to stay afloat even in moderately rough seas.

First customer for the Vertol 44 is the Swedish Navy, which took delivery this January on the new helicopter.

Vertol now has three Model 44-type helicopters undergoing tests with turbine engines installed instead of reciprocating engines, and it is anticipated that the Model 44 can be retrofitted with turbine engines when they are available, thus eliminating any need for a present operator to buy a new aircraft in order to get a turbine operation.

In addition to the turbine-powered model, Vertol is doing research and ground testing on a tilt-wing vertical take-off aircraft.

DON RYAN MOCKLER, Director of the Helicopter Council of the Aircraft Industries Association, which among other projects is doing extensive work on heliport specifications.

A.W.B. VINCENT reports that first delivery of the Hiller 12D-1 is planned for October 1958. For the past two years Hiller has been busy with the three-place, 200 hp. Franklin powered 12C. Now the H-23D is being delivered to the Army with completely new drive system designed for 1,000 hours between overhauls and powered by a 250-hp. Lycoming. The 12D-1 commercial version with full CAA certification has the same drive system and basic design as the H-23D, but has a 310-hp. Lycoming engine. With a cruise speed of 87 to 89 knots the 12D-1 has a maximum range of 150 to 160 miles with a 48-gallon fuel tank.

The Hiller XROE Rotorcycle, one-man helicopter developed for the Navy, operates with a 40-hp., 4-cylinder, 2-cycle Nelson engine. Extreme maneuverability and small size permit flight at very low levels. Cruising speed is over 50 mph with a maximum speed of 70. In addition to being light weight (270 pounds empty) the Rotorcycle can be folded and carried easily by two men and can be dropped by parachute, assembled and ready for take off in ten minutes. The high degree of stability makes it an easy vehicle for helicopter instruction.

JACK LEONARD reports that Cessna is coming closer to the marketing of the CH-1B, four-place commercial helicopter, powered by a 270-hp. Continental. "We have been working on the project for five years . . . In 1952 the test bed was flown. A year later the prototype was flown, and in 1955 the two-place version received certification. This was recertified as a four-place plane in 1956 . . .

"Cessna made an effort to give this helicopter all the power that anyone would ever want in it . . . We now feel that the helicopter can go out into mountainous areas and operate safely, efficiently and with an economically satisfactory payload."

Two years ago the Cessna helicopter was flown to the top of Pike's Peak, and last December Army Captain James E. Bowman flew the Army YH-41, the military version of the CH-1B, to 30,355 feet breaking three world's records for different weight categories. During the flight Captain Bowman encountered the jet stream at 28,000 feet.

During one point in the flight the helicopter produced contrails.

Cessna continues to deliver the YH-41s to Ft. Rucker, where extensive tests are being conducted.

C. W. MOORE, executive vice president of Chicago Helicopter Airways, Inc., which last year carried 55,000 people in scheduled helicopter service and next year expects to double that amount. The company has flown over three million accident-free miles, the equivalent of 120 times around the world. One of the first commercial helicopter pilots in the country, Moore worked for Bell in Buffalo before the war. In 1947-48 he flew helicopters in South America, doing spraying in Argentina. Chicago Helicopter Airways is in its second year of passenger service, operating 86 daily flights on half hour schedules from Chicago Midway to O'Hare Field and Meigs Field Heliport at the southeast edge of Chicago's Loop. In addition to passenger service, CHA delivers mail to 54 suburbs three times a day. S-55's and S-58's are used for passenger service and Bells for mail. Of the passengers carried last year, not more than 1% had ever been in a helicopter before. The company has interline arrangements and approximately 40% of its tickets are sold by the airlines.

BILL BOEING, of Aerocopters, Inc., son of the founder of Boeing Aircraft Co. Aerocopters, beginning its fifth year of operation in the Seattle area, has 14 helicopters, all Bells. The company also has a base in Salt Lake City, where equipment and a crew are kept.

REX KAUFMAN from Associated Helicopters, with headquarters in Edmonton, Alberta. Associated flies ten Bells, working from the southern border of Canada to the Arctic. In business since 1950, the company trains its own pilots and engineers, and engages in oil exploration, geology jobs, forestry and topographical work.

J. A. ROBERTS, president of Spartan Air Services Ltd. of Ottawa. The second largest helicopter operator in Canada and one of the largest aerial survey companies in the world, Spartan flies 50 aircraft, 24 of them helicopters. It is the first commercial operation to use the Vertol 44.

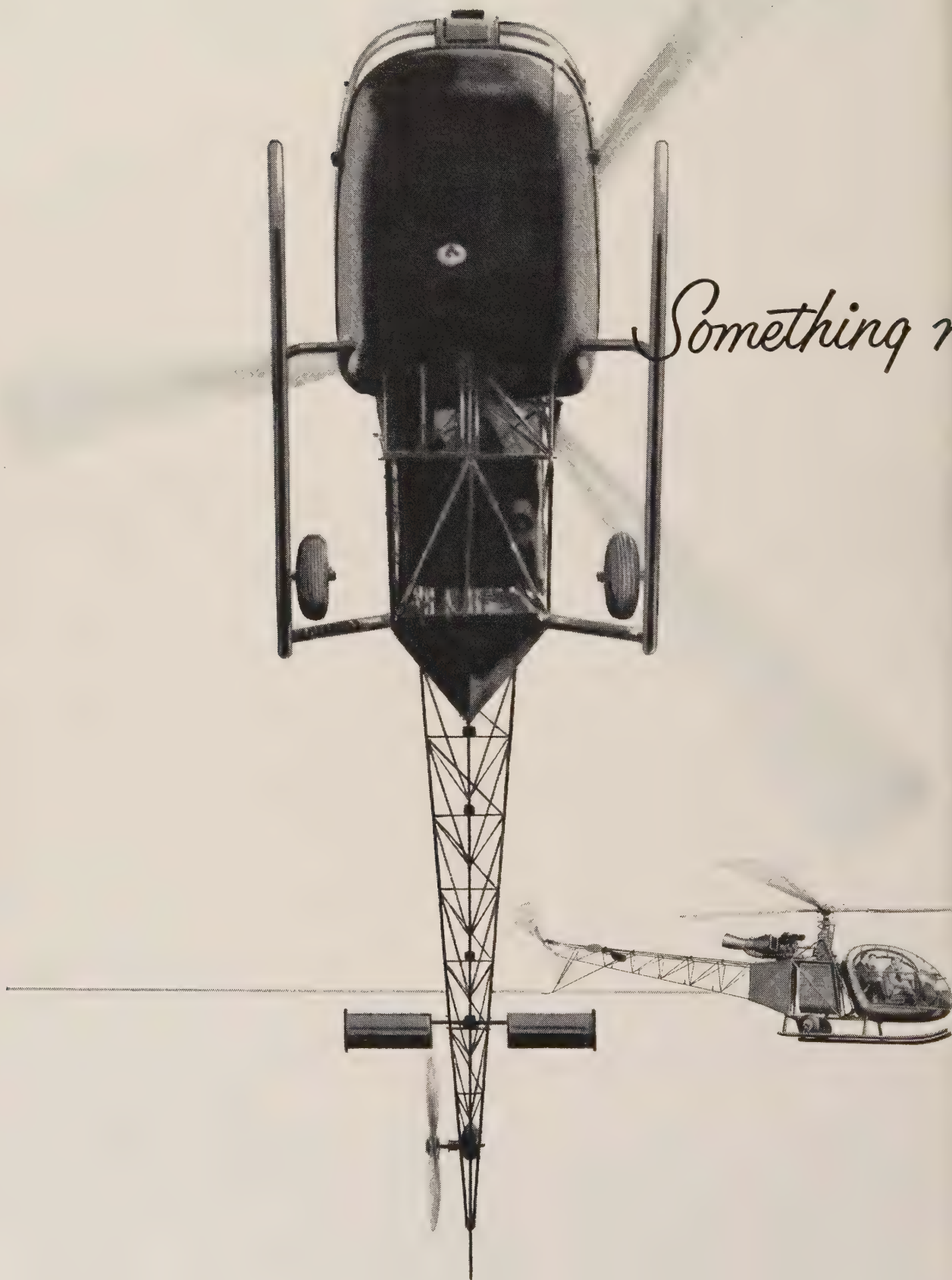
E. S. GREGG points out that the eight-passenger Doman LZ5, with a gross weight of 5,200 pounds, an empty weight of 3,250 pounds and a 400 hp. Lycoming powerplant, has a power loading greatly in excess of what is normally carried in aircraft of this type. The large payload for low horsepower in the Doman reflects efficient design and high operating economy and, he says, is the highest payload per horsepower in the industry.

One of the outstanding features of the Doman is the much simplified rotor system, which marks a major advancement in rotary wing design.

Doman feels that in the past, military needs have dominated helicopter design. Doman is trying to provide a light weight, less complex, more easily maintained helicopter with an operating cost low enough to be economical for commercial operation.

HELICOPTER ASSOCIATION will study the need for an executive secretary; recommendations due at next annual meeting. San Francisco will be site of same, with Hiller Helicopters as host corporation.

Something new



... *in the air!*

ALOUETTE

World's first production turbine helicopter

The Alouette, miles and years ahead of any other helicopter in the air, is completely revolutionary. It embodies many remarkable features which represent the newest advances in modern European engineering.

Designed in France by Sud Aviation, the Alouette is presently assembled and marketed by Republic Aviation's newly formed Helicopter Division which parallels the Alouette in originality of concept > > > Republic's Helicopter Division is the first organization of its kind to devote its facilities primarily to commercial helicopter needs. Complete manufacture of the Alouette in the United States is Republic's ultimate, short-range goal. > > > The Alouette has already built up an impressive flight log of more than 26,800 miles throughout its U. S. tour. During its demonstrations in 31 cities to commercial air transport companies, feeder line operators and private enterprise, it proved its superiority conclusively... both economy-wise and flight-wise.

Because of its extraordinary versatility, it can do many jobs heretofore considered outside a helicopter's capabilities. Thus the Alouette is ideally suited to the needs of a broad range of industries.

- No warm-up time
- Instant take-off
- Simplified controls
- Radically lower maintenance costs
- Instantaneous power response at no sacrifice to rotor RPM
- Faster cruising speed
- No engine vibration
- Fuel economy
- High altitude performance
- All-weather operation

Write for descriptive pamphlet

REPUBLIC



AVIATION



HELICOPTER DIVISION

FARMINGDALE, LONG ISLAND, N. Y.

Weather Planning for the Business Pilot

PART 2

ROUND TABLE MODERATORS AND PARTICIPANTS

Part I of Skyways' Round Table last month helped describe the roles of the private meteorologist and the U.S. Weather Bureau in the growing picture of increasing demands for personalized, detailed weather information by the business aircraft pilot.

Co-moderators Spengler and Merewether lead this month's concluding discussion to more pertinent questions, starting with:

Spengler: Will the private weather service tend to make the corporation pilot relax and not take the responsibility on himself?

Teel: I feel that it will somewhat. Anyone can give a bad report. On the other hand, with a 12-hour or a 24-hour forecast in mind and at hand, if the pilot finds a change in the weather of the moment he has a mental picture of the cause and of what to expect.

Van Liew: Relative to that, Don, do you believe that meteorology as such is a progressive science in that it has changed many of the concepts that are being developed from a technical standpoint and have gone far and away beyond what many of these pilots learned prior to and just after World War II?

Teel: I agree on that.

Van Liew: A good meteorologist gives the pilot a good briefing, right or wrong, and forecasting which is updating the pilots.

Teel: It can improve the pilot, make

him better. On the other hand, the pilot can feel that the weather is not his concern. If the forecaster tells him it's going to be good for a flight the following day, the pilot, rather than checking during the night, can just rely on the forecast whether or not it proves to be true.

Hopkins: My interest is that our pilots have the very best information available for any part of the trip. He will get more attention and details from the private service, hence will learn more about weather and weather flying.

Peterson: As a general rule Weather Bureau personnel do not advise pilots whether or not to fly—we brief on the weather itself. In some cases, the pilot definitely wants such advice. And in some cases—a novice pilot, for instance—he should be advised. But it is still the pilot's decision whether or not to go and just how to plan his flight.

Murray: We have found that the pilot is just as interested in what the forecaster's thoughts were in preparing the flight forecast as he is in the actual flight weather information it contains. This background information could help him out of some unexpected weather that was not covered in the forecast itself. The result of this background briefing seems to be that the pilots using our service are becoming more proficient in the technical end of weather forecasting.

Merewether: Just how does the business



KENNETH C. SPENGLER, moderator, above right, secretary, American Meteorological Society.

A. F. MEREWETHER, co-moderator, above left, superintendent of weather services, American Airlines.

JOSEPH DENARDO, Denardo and McFarland Weather Service.

DON TEEL, director, Air Transportation Dept., U.S. Steel.

NORMAN CAMPBELL, pilot, National Lead Co.

JIM HOPKINS, chief pilot, American Can Co.

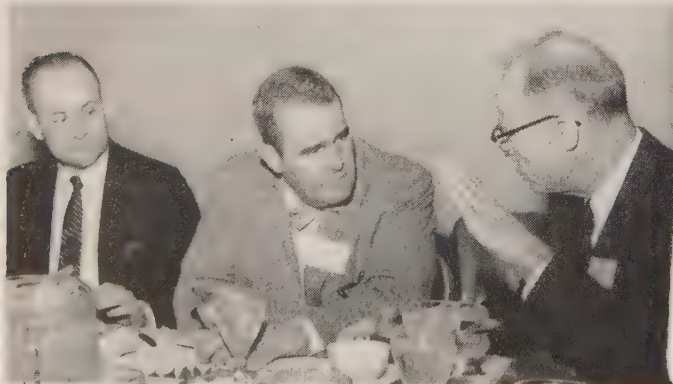
KENNETH HORTON, pilot supervisor, Sinclair Refining Co.

JOHN E. WALLACE, president, Northeast Weather Service.

A. C. PETERSON, chief, Domestic Aviation Section, U.S. Weather Bureau.

NORMAN F. LACEY, chief forecaster, National Weather Forecasting Corp.

JOHN R. MURRAY, Murray and Trettle.



CO-MODERATOR MEREWETHER, right, asked the two private weather consultants next to him, Van Liew, center, and Lacey, what legal liability of private meteorologist is re an accident.



ON BAD WEATHER DAYS our weather briefing requests would snowball, Wallace said, adding, I've seen our forecasters spend 40 minutes on a briefing. Listeners are Teel, left, and Campbell.

lot fly? Do most business pilots fly without ever seeing a weather map?

Murray: The first thing we do when giving a flight forecast to a pilot is to provide him with a synoptic weather chart current to the last hourly sequence. After he has the synoptic picture, the forecast cross-section is filled out for him. Thus, when the pilot hangs up after talking to our office he has the latest synoptic weather conditions, a detailed weather cross-section and probabilities for each segment of his flight. He also has been given a very complete briefing which always includes his best "out" in case he runs into any unexpected weather along his route. While we don't operate from an airfield, this service method has worked very well for us.

Denardo: A corporation considering using a private weather service should remember two things, it's buying a weather service as such, and it's putting a big responsibility on the personnel. When we brief a pilot, it represents a great responsibility, piloting persons of importance. It's our responsibility to inform the pilot where his "out" is at all times. On the business side, economics, I've come up against it often. If someone is willing to put \$500,000 into an airplane, I can't see why this person wouldn't be willing to put \$1,200 a year a year into a service that is going to provide an additional safety factor. If you can save the individual from making one unnecessary flight, you've practically paid for that service on one forecast.

Horton: I agree with not economizing on safety. Also, I agree with Captain Van Liew that en route weather is more important than terminal weather. You want a safe, comfortable flight. However, I do not feel that we are compromising our safety because we are not taking private weather service.

Denardo: The more information you can get, the better off you are.

Van Liew: Different pilots like to fly different types of weather. I like ice but hate thunderstorms. An advantage of the private weather forecaster is that he gets to know his pilots' likes and dislikes.

Teel: We fly any weather the airlines fly. As Captain Van Liew said, when he's scheduled to make a flight, that flight is going to be made. We work the same way. If we know the airport destination is going to close, we can be helped if we know, also, that we can leave two hours before it is to close, or two hours later so that we can make the desired airport. Time element is very important. Another point is flying comfort. Our executives don't mind flying minimum weather, but they do mind turbulent air. They'd rather we take the long way round to have a smooth flight.

Wallace: Regressing a moment to Mr. Teel's statement that the pilot having access to private weather service might not feel concerned about the weather. I believe that in practice the opposite is generally the case. Part of the service a private weather organization has

to offer is time . . . time to give the pilot a good synoptic picture of the current weather chart, even though briefing takes place by telephone. Weather Bureau personnel are probably briefing from the same weather chart, but they just don't have the time to devote to giving the same type of complete briefing. Private weather service can explain just how confident the forecaster is that his report will verify. This is very important for the pilot, too. There are times when a weather forecaster is reasonably certain that his three-day forecast will verify while at other times he is very shaky on weather developments six hours in advance.

Teel: That's just as important to us.

Wallace: We like to give a detailed report on turbulence, icing and so forth.

Merewether: What legal liability does the private meteorologist have if one of his clients cracks up? What arrangements do you have for following a flight, once it's airborne?

Murray: As far as legal liability is concerned we have the same as any professional will have. If they can prove negligence, then we are liable. However, the big problem is that you may be called upon to defend in a law suit which could run into a considerable amount of money.

With respect to setting up air-to-ground radio contact, we have investigated the possibility without much success. I talked to F.C.C. in Chicago, and obtaining a frequency is a real problem. I understand some of the consultants have managed to install a radio. We are still very much in the process of trying to do so. Even here some of our pilots have mentioned they don't know how important it would be.

It does lead to one more thing that has not been brought out. That is, we find ourselves now becoming more and more a clearing house for flight information. A pilot will land and call the office to report on his in-flight weather. Thus, we have actual pilot reports that we can use in preparing a forecast. These reports are not available on the regular teletype service.

This idea of the consultant spending more time briefing the pilot is further augmented by the fact that he can spend more time preparing the forecast

H. R. VAN LIEW, Round Table participant, mistakenly identified as a retired Marine Corps colonel, is a very active reservist with 28 years USMC service. Remark quoted in last month's issue, page 48, "if I make up 50 hours of flying a year at eight cents per minute, I have saved United Air Lines considerable money," he meant to say "at eight dollars."

if necessary. When atmosphere conditions are rough to forecast, the Weather Bureau people are usually snowed under. Time to think out a route forecast is generally limited. In our case we know in advance what flight is planned. We can spend an extra hour on the forecast if weather conditions warrant it. I am certain that this extra time makes a more detailed and better forecast.

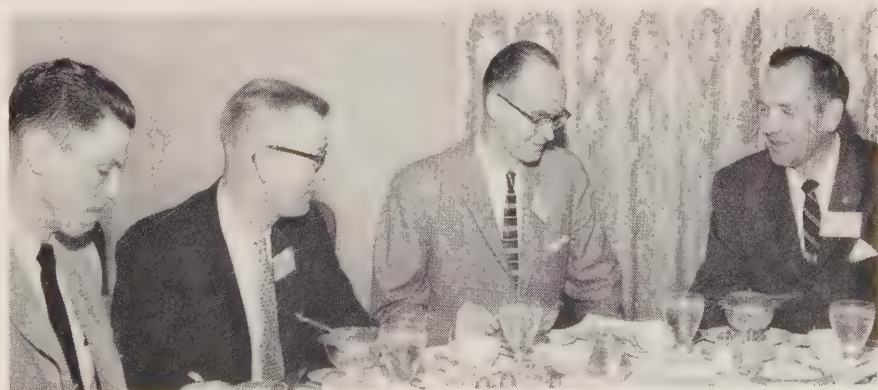
Horton: The only thing that I can add which probably suits us both is that maybe something could be done to get the pilots to report "tops."

Peterson: That's a problem we've been working on for years. We know that many more pilot reports are made than get on the teletype circuits. Best thing we've run across is a cooperative arrangement with American Airlines at New York where we have a drop on their operational teletype circuit. This is keyed so that we get only their pilot reports. We put those out on our circuits which cover mainly the routes east of the Mississippi. We're now trying to work out a similar arrangement with Capital Airlines at Washington. Random itinerant flight reports just don't get the follow-through treatment they should have. At major terminals we try to check routinely with the towers to get reports on terminal "tops" in the area. Much more work is needed, however, in this endeavor.

Horton: What can we do as pilots to make sure that our reports of "tops" on takeoff can be relayed to the next fellow? How can the private consultant get the information?

Denardo: We use 123.0 and have what you might call an airline operation.

(Continued on page 54)



EVOKING SMILES, Horton, right, said, the only thing "I can add which probably suits us all" is to determine some method of getting pilots to report "tops." Pilot Campbell, left, makes note of the comment, while Peterson, second from left, and Murray listen.

NAVICOM

Narco-Suggested Dual Nav-Comm System

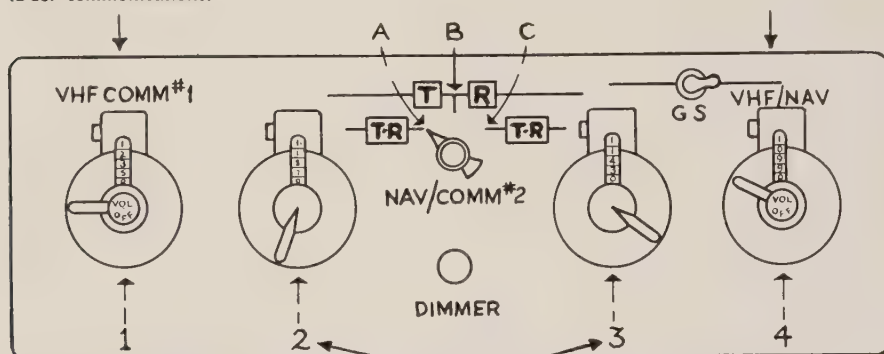
Very few business pilots have escaped the problem of planning an efficient, practical, complete radio layout for their airplane. Often services of fixed base dealers meet this problem, but

some pilots prefer to select their own.

Narco has laid out a system employing 2½ Sapphires 1016's that make a neat package for any light-twin or heavier business aircraft. Only two antennas, one NAV and one COMM, are used, the whole, exclusive of glide slope receiver, weighs 74 lbs and costs \$8,700.

PRIMARY VHF communications unit provides 360-channel transmitter, 560-channel receiver for single channel simplex (SCS) or double channel simplex (DCS) communications.

PRIMARY VOR or ILS system with simultaneous glide slope channeling. This consists of a 560-channel 1016 receiver unit plus glide slope receiver.



With center function switch on position "A," transmitter and receiver are set up for simplex operation on frequency selected on control #2.

#2 NAV/COMM system is controlled by two center selectors controlling #2 1016 unit consisting of 360-channel transmitting 560-channel receiver.

Control #3 can be pre-set for next communications frequency desired and activated by moving function switch to position "C."

Switch set at position "B" sets up cross channel communications with control #2 operating transmitter, control #3 operating receiver.

Control #3 can also be set up for ILS frequency with simultaneous glide slope channeling by putting GS switch to left.

Helicopter Navigation Program Announced By AMB And Bell

The AMB is evaluating Bendix-Decca pictorial log navigation on N.Y. area helicopter routes. New York Airways is cooperating with their Sikorsky equipment. Further, Bell Helicopter Corp. is equipping a special test AMB helicopter to pursue the problems of better instrumentation.

At the American Helicopter Assn. tenth annual convention in Texas in January, Harry Mitchell of Bell discussed at length the Bell-Bendix-Decca blind flight instrument program.

Purpose of the program was not to attempt to prove the efficiency of Decca, but to try to find out what other equipment was needed for successful instrument flight. Specifically, three questions were asked during the flight testing:

1. Is the present helicopter equipment satisfactory for blind instrument flight with this system?
2. What degree of accuracy is needed in the altimeter used?
3. Will new piloting techniques be required with this system?

Goal of the program was to approach "black bubble operation," with instrument landings possible in remote areas having no other navigation or instrument landing facilities. One master Decca station and two slave stations were placed in operation and flight test was done in a Bell 47H provided with Decca equipment and special instruments, including an instantaneous rate of climb and a Bendix sonic absolute altimeter. The first step was to draw a Decca map of the area.

A typical flight test consisted of an instrument take off, flight around the area and selection of a landing spot, flight to the vicinity of the spot and follow the cross-pointers right onto the spot. By following the localizer needle it was possible to fly any desired course.

Weight of the equipment in the test ship was 145 pounds, including Decca equipment and Doppler radar. Results of the program indicated that the present helicopter equipment is not sufficient for the system and it will be necessary to increase the sensitivity of altitude indication for low level helicopter flight. The pilot should know absolute altitude

within \pm three inches. This information is not available in present helicopter equipment but will be available in the future.

For Decca instrument landings no changes in piloting techniques are required beyond standard instrument flight techniques using the cross-pointers during approach. One man can handle the flying. The system works best over water and open areas, with some fuzziness over trees. It is not possible at present to know the surface conditions of the landing spot from the air, and it is necessary to have surveyed a desirable place in advance for a flap spot on which to land. Present cost of the Decca installations, \$35,000 to \$40,000, in the small numbers now produced. Price can be reduced with quantity production.

The Airways Modernization Board is now installing Decca in the New York Area, and helicopter operators are invited by the Board to visit the installation there.

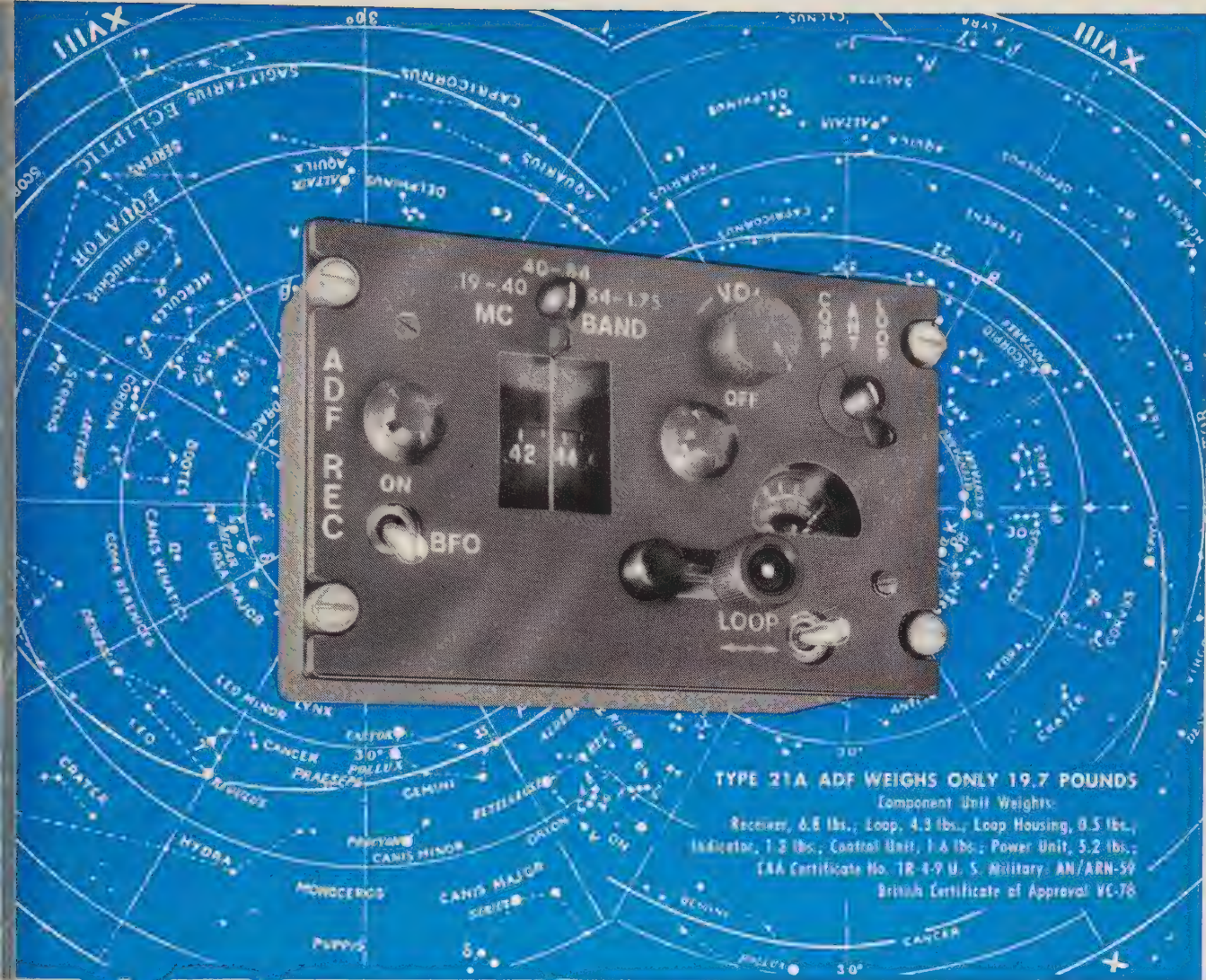
VHF Standby Transceiver

The transceiver is crystal-controlled and covers any two-megacycle band from 118 to 132 mc/s. The entire unit fits a standard three-and-one-quarter inch panel opening and extends behind the instrument panel. Complete with its own built-in power supply, the transceiver operates from either 14 or 28 volt sources. The weight of the unit is less than five pounds.

The transmitter has an output of two-and-one-half watts conservatively



The receiver operates at headphone or speaker levels. Backlighting dial, ruggedized tubes and built-in antenna relay are also included on the transceiver. The unit is also designed for communications use in airport and industrial vehicles.



TYPE 21A ADF WEIGHS ONLY 19.7 POUNDS

Component Unit Weights:

Receiver, 6.8 lbs.; Loop, 4.3 lbs.; Loop Housing, 0.5 lbs.;
Indicator, 1.3 lbs.; Control Unit, 1.4 lbs.; Power Unit, 5.2 lbs.;

CNA Certificate No. 1R-49 U. S. Military: AN/ARN-59
British Certificate of Approval VC-76

Modern Star

For World-Wide Aircraft Navigation

ARC's TYPE 21A AUTOMATIC DIRECTION FINDER

Because it can be tuned to some 60,000 transmitters, spread all over the world, the ADF is a widely used navigation aid. Important news about the ADF, however, is that ARC has engineered this basic instrument down to less than 20 pounds in weight, with a comparable saving of space.

Now pilots enjoy the advantages of dual installations of this compact miniaturized equipment in tolerable weight and space requirements.

The ARC Type 21A ADF is built to today's more critical speed and environmental demands. It has hermetic sealing of vital components, such as the entire loop assembly. It covers all frequencies from 190 kc to 1750 kc . . . operates on only 2.8 amps at 27.5 volts dc input or equal power at 13.5 volts. A significant feature is the extremely low loop drag — only two inches outside the aircraft skin.

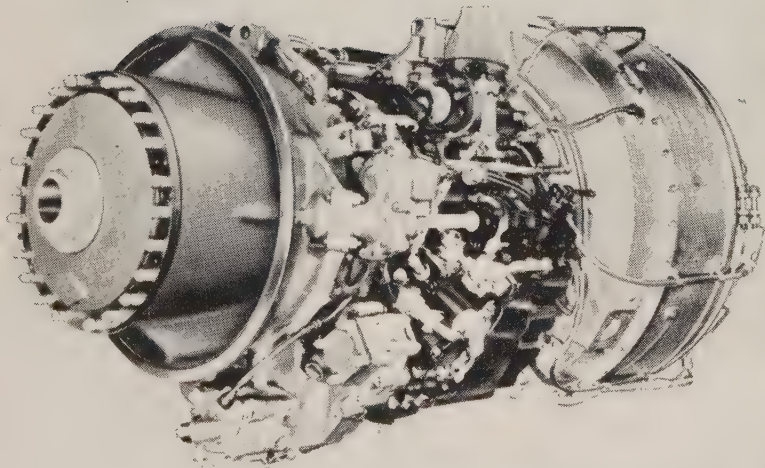
Ask your dealer for detailed literature.

Dependable Airborne Electronic Equipment Since 1928

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UHF AND VHF RECEIVERS AND TRANSMITTERS (5 TO 360 CHANNELS) • INTERPHONE AMPLIFIERS • HIGH POWERED CABIN AUDIO AMPLIFIERS
10-CHANNEL ISOLATION AMPLIFIERS • OMNIRANGE SIGNAL GENERATORS AND STANDARD COURSE CHECKERS • 900-2100 MC SIGNAL GENERATORS





Lycoming's T-53 adds new power to Vertol 105

Recently a Vertol copter's single reciprocating engine was replaced with two Lycoming T-53 gas turbine engines—to become the Vertol Model 105. The conversion required only very minor structural modifications, dramatic proof to all manufacturers that they can install new turbine power *without having to design entirely new ships!*

Successfully tested and proved on a 200-mile cross-country run, the Vertol 105 is about 50% speedier, carries a pay load approximately 40% greater than the reciprocating-engine version. In addition, it boasts a greater safety factor and operates with less noise level and engine vibration than formerly.

NOTES ON LYCOMING'S T-53

—world's first free-power gas turbine designed specifically for helicopters:

Outstanding performance—825 shp in so little space (length: 47.6 ins.; diameter: 23 ins.); only 460 lbs. Uses a variety of fuels—including automotive and aviation types, gasoline, and JP-4—with a low fuel consumption.

Minimum of critical materials—assures availability of the engine, even under emergency conditions.

Rugged design features—guarantee safe operation under the most grueling pressures; guarantee long life for the engine.

Unprecedented ease of maintenance—entire power turbine and combustor may be removed as an assembly for inspection and maintenance in the field.

Versatility—available with front-end take-off or rear-end take-off or with simultaneous power extraction at both ends.

For further information, write to: Lycoming Division, Avco Manufacturing Corporation, 550 South Main Street, Stratford, Connecticut.

1908-1958: 50 YEARS OF POWER

Lycoming

A Division of Avco Manufacturing Corporation

Change To Double Channel Simplex

The high rate of obsolescence of air-
craft electronics equipment is one of
the significant problems faced by every
business aircraft pilot and operator.
Where that obsolescence falls within
reasonable amortization periods and
is materially to the utility of the air-
plane, it makes sense.

Where it merely makes it hard for
business or corporation pilot to
justify additional, unplanned-for ex-
pense in his operation, it becomes an
arbitrary abuse of public responsibility.
But there be any doubt that this is so,
the recently revealed fact that, with-
out the multimillion dollar program
to install TACAN (complete facility,
not just the DME portion) all over the
country, the "civil" airborne equipment
is not yet out of the engineering pro-
posal stage (nor the "estimated" price
confirmed). The revelation of the
airlines' abandoned interest is com-
pounded by the fact that much of the
military deliveries are now being made
with VOR equipment contracted for
before the infamous decision may yet
give the CAA holding the TACAN bag
to the military.

In this light, let us examine the cur-
rent communications changeover to
double-channel simplex (DCS). This
provides for one frequency for ground-
to-air contacts and a companion fre-
quency, six megacycles higher, for
air-to-ground calls. In DCS the air-to-
ground and ground-to-air channels are
always so paired. For example, calls
enroute communication stations on
126.7 mc. will be answered on 120.7
mc. on request of the pilot, as of now.
But, on July 1 it will become auto-
matic for ground stations to reply on
120.7 mc. to any call on 126.7 mc.,
unless the pilot advises that he desires
the ground station to reply on another
frequency.

The advantages of DCS include elimi-
nation of such airborne interference as
presently congests 126.7 where other
going aircraft signals frequently pre-
vent the receipt of enroute ground sta-
tion replies. Enroute ATC handling has
been much hampered by this as well as
receipt of vital weather and other data
intercepted on the voice facility of
navigation frequencies.

Another advantage claimed is the
possible reduction in the geographical
separation of certain frequency as-
signments, although UHF has opened
an extraordinary wide range of
channels.

ATC-wise, the double-channel opera-
tion will permit a controller to initiate
call to a second aircraft although the
first aircraft is still transmitting. Since
it is simplex, however, the controller's
receiver will be muted while he trans-
mits, thus losing the advantages of
crossbanding (example, aircraft on
23.5 kc or "common" VHF with
ground station on primary VHF)
wherein controllers and communicators
required the unique ability to receive
and interpret aircraft calls while re-
sponding to preceding calls.

The facts are that there are more
serious disadvantages. For one, since
pilots will be less able to know when
the airborne frequency is in use, the
congestion and breaking-up of com-
munications may be greater than it is
now. With the military need for a com-
mand ground frequency un-contami-
nated by aircraft calls this may be no
problem. But a much smaller percentage
of two-way contacts is initiated by the
ground station in civil airway use.

A second major disadvantage lies in
the loss of the relay capabilities of
current Single-Channel-Simplex (SCS)
wherein airborne aircraft frequently
can hear and relay vital transmissions
of other aircraft unheard or unreadable
by the ground station or controller,
greatly facilitating ATC handling at
critical moments. The value of this in
an emergency situation is obvious and
proved.

Most new high quality transceivers
coming on the market today are capable
of optional DCS or SCS operation, so
that no penalty is imposed if replace-
ment or original installation is con-
templated at this time. However,
conversion or replacement of the many
popular transceivers already in use is
a problem to be faced if the DCS pro-
gram is fully implemented on other than
enroute ATCS frequencies.

Smaller personal business aircraft in
the 2-4 place category are not neces-
sarily as much affected since many of
them cross-band, calling on a "common
air-to-ground frequency" and listen-
ing on any desired ground frequency
within their capabilities including the
voice channel of the nav-frequencies.
Also, IFR communications requirements
are not as heavy a factor with them as
with the light and heavier twins of the
business fleet. The proposed increase in
VFR minimums, however, may expand
the area of concern with the proposed
change to DCS, because effective con-
trol relies completely on reliable 2-way
communication.

Business Pilot Speaks At ATCA Meet

The lifeblood of the ATC system now,
and for some time in the future, re-
mains the human controller. Regardless
of all electronic marvels, computers and
other gadgets promised to help resolve
the tangled airways, the controller will
have to be in there making these aids
work.

The Association of these controllers
is an organization devoted to more than
trying to improve the lot and circum-
stances of their members and the
profession as a whole. It is also much
concerned with contributing in an or-
ganized, effective manner the experi-
ence and knowledge of its membership
to the future development of the nation's
airways.

At its meeting in Indianapolis last
fall, business aviation was represented
by Mr. Manning, executive pilot for
Inland Container Corp. of Indianapolis.
His remarks were so unusually sound
and to-the-point that SKYWAYS quotes
from them here:

"Official statistics show, and all of
the aviation journals constantly remind
us, that civil aviation is rapidly grow-
ing. Scheduled carriers have shown an
unprecedented growth year after year.
Another category, usually called general
aviation, is growing even more rapidly.
Those statistics are being utilized for
predictions of the future. They may be
quite erroneous as a result of the mul-
tiplication of inherent errors in the basic
statistics. Some of these errors may not
be realized and may affect the plan-
ning of future air traffic control fa-
cilities and methods. Thousands of
companies, economically sound and
conservative organizations, have a prac-
tical need for private air travel. How-
ever, the growth may not be so rapid
as statistics in the past few years may
indicate. Since business aviation, for
statistical purposes, has often been con-
sidered as part of general aviation,
rather than in a separate category, con-
siderable error has been introduced.

"General aviation, including all avia-
tion except military and scheduled air-
lines, has had a phenomenal growth.
This includes crop dusting, pipe and
power line patrols, sport flying and
considerable pleasure travel.

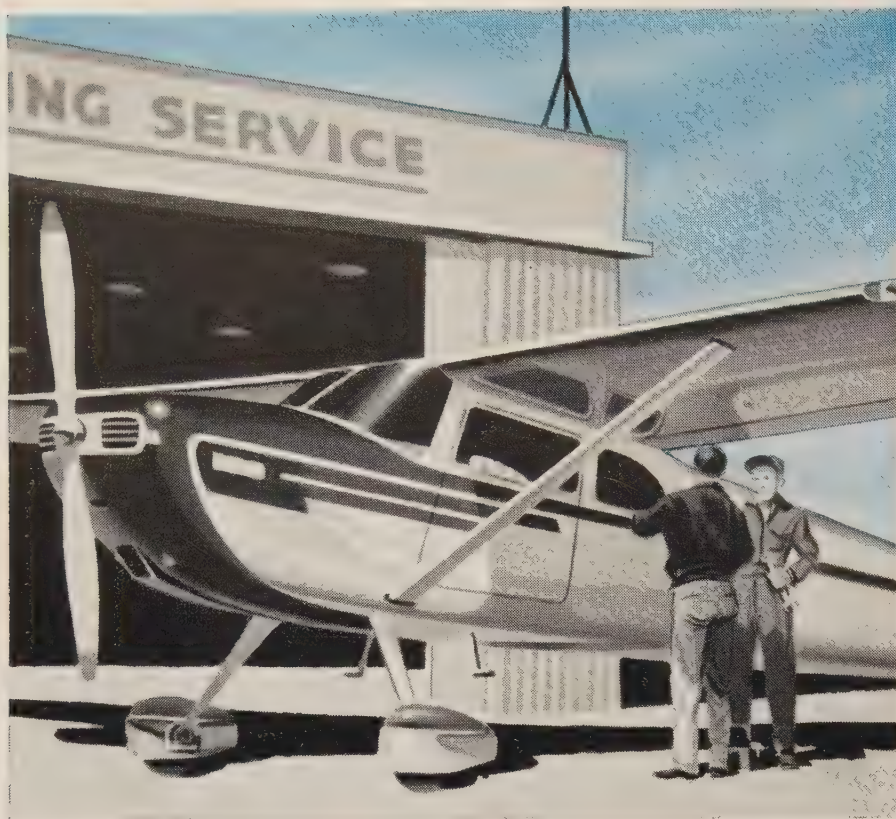
"Purely business flying by conserva-
tive and sound companies, which spend
money only to make more money, is
steadily growing. It is well founded but
has some major limitations in the future
rate of growth.

"Many individuals in the aviation
industry believe that we need new air-
planes in business flying, more speed,
more range, pressurization, turbo prop
jet, and so forth. Undoubtedly we will
need them for the future, but their
availability probably will not promote a
rapid growth or increase in business
flying. We'll continue to be faced by
the greatest detriment to expansion,
the lack of competent professional
aviators with industrial sales and man-
agement experience and capability to
sell, manage and keep business aviation
sold. Conservative industry has never
rushed to buy other expensive, complex
industrial equipment until they were
sure of competent management, main-
tenance and operation. With airplanes,
which introduce personal psychological
problems to business management, ad-
ditional obstacles are present.

"If a business executive approached



you today and said, 'Our competitors
have their own planes. I think we may
need one. We wish to employ a man



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The services of authorized distributors handling parts and units for Bendix* carburetion systems or landing gear equipment can mean a great deal to fixed-base operators.

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Bendix PRODUCTS DIVISION **South Bend, Ind.**



to study our business travel problems to determine and to advise what an airplane could do for us. What would it cost to own and operate? We have no interest in aviation except as a means to increase productivity of key personnel and increase their business efficiency and profits. If it appears practical, we will need guidance in selection of the proper airplane and equipment. We will want a man to establish, organize and operate an aviation department for the company. Who would you recommend for such a job? After 22 years in aviation, I know of few people who can handle this assignment.

"These are real problems faced by conservative business management in considering their first airplane. These questions must be answered by someone for each company before they buy their first airplane. Due to this deficiency in personnel, conservative businessmen are not really rushing into aviation enough to be sold.

"In an effort to sell business aviation to the Inland Container Corp., I approached them three years ago with some of those answers. Today, we're operating two new twin-engine Beechcraft, we employ three crews and provide part of the administrative and business promotional travel for our company's 12 manufacturing plants and two paper mills. Our planes are elaborately equipped for operational efficiency, passenger comfort and convenience. Our first pilots have airline transport licenses. Our co-pilots have commercial licenses, instrument and multi-engine ratings, and utilize their airplane and mechanic licenses for the maintenance of our planes. We employ considerable showmanship in our flight operations to impress our passengers with our precise, methodical procedures which help to foster safety, comfort, reliability and confidence. From personal point of view, the only challenge to this type of flying is to strive for perfection and precision. We operate primarily East of the Mississippi River and fly on instrument flight rules exclusively, except when greater safety or comfort can be realized by flying visually.

"In general aviation, or even in purely business aviation, there are no standards, no average flying operations, no average airplanes or average pilots. The airplanes vary from poorly equipped and maintained aircraft to over-maintained airplanes, which may more appropriately be considered as displays of every latest type of equipment available. Those airplanes are not flown much. The pilots vary from sloppy slob and conscientious amateurs, to precise professionalists comparable to recognized professional men such as doctors of medicine, attorneys and so forth. I have heard business pilots discuss the merits and deficiencies of various Air Route Traffic Control Centers, Air Route Communications Stations and Towers. Most comments are favorable. Those individuals who do complain are often the least professional, the least informed and the least proficient.

"I have even heard professional air-
pilots sound off on the radio in a
professional manner about other
planes trespassing in their private
space. If they were sufficiently
cognizant of the operation of our air
traffic control system and with proper
operational techniques in most cases
confusion would be greatly reduced.
Though our company policy of flying
exclusively by instruments may be con-
versational we find it keeps our pilots
familiar with departure, enroute and
approach procedures. Moreover, it pro-
cesses accuracy. It has been suggested
that if everyone flew instruments ex-
clusively the air traffic control system
would be over-burdened and break
down. That is true if it occurred
suddenly. But, a gradual increase should
facilitate authorization for more traffic
control personnel and equipment which
would ease the workload of actual in-
strument operations, wherein 'the boys'
drop out and 'the men' keep flying.

Although much derogatory publicity
has been given to our present air traffic
control system, and laymen may con-
sider it inadequate and dangerous, in
half of our present system and in
defense of the personnel who operate
and the pilots who use it, I think it
works very well. However, it probably
does have specific limitations and cer-
tainly is too complex for greater ex-
pansion. Immediate planning is needed
for future needs, and the procurement

of actual hardware should not be de-
layed. It appears that traffic restrictions
could and should be alleviated by the
installation and staffing of additional ap-
proach facilities.

"We find the greatest departure
delays at locations without adequate
facilities. We need more controlled air
space, more instrument landing sys-
tems, and departure or approach con-
trol facilities, preferably with radar
equipment. Direct communication be-
tween the Air Route Traffic Control
Center and the aircraft greatly en-
hances efficiency, but we need more fre-
quencies and radar control by Centers
in congested areas. Additional low
level control arrangements would prob-
ably provide more useable air space
and increase safety and comfort for
avoidance of turbulence. Airports which
currently have these facilities, includ-
ing instrument landing systems, radar
approach control, and so forth, fre-
quently reach saturation of existing run-
ways. It appears to me we need more
parallel runways to permit take-offs
while landing traffic on approach.

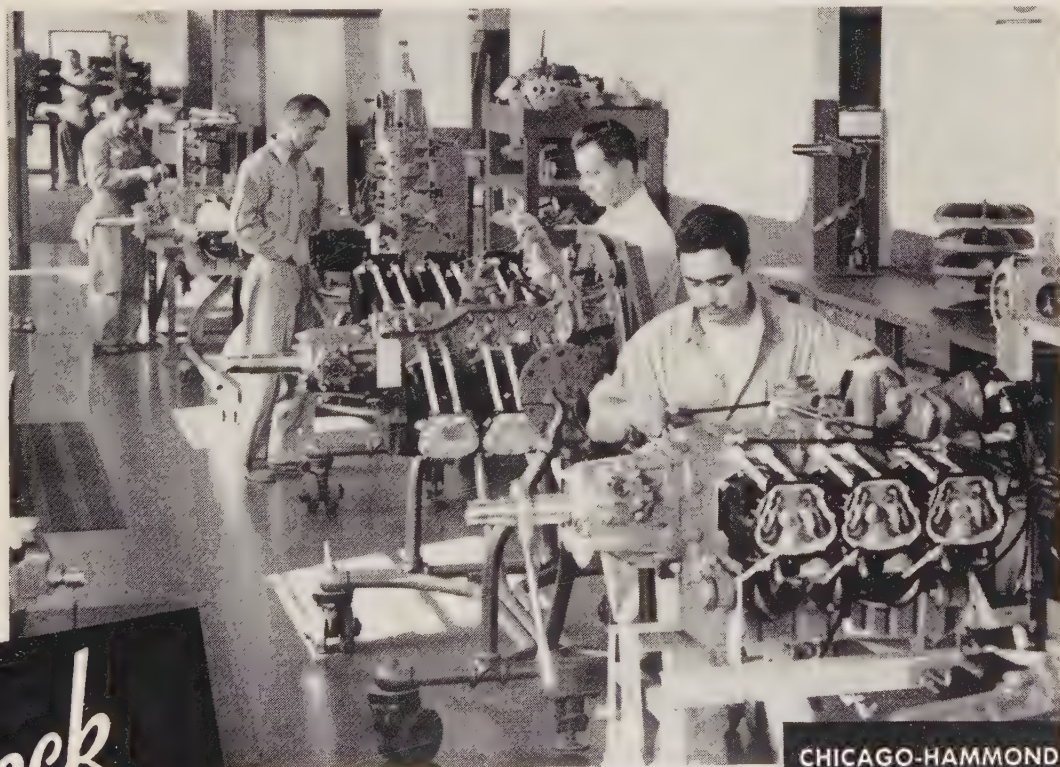
"One specific problem, about which
I am particularly concerned is the in-
adequacy of weather information due
to the lack of a working arrangement
between Air Route Traffic Control
Centers, Communication Stations, and
local Weather Bureau offices. It seems
that Centers are usually cognizant of
enroute weather at various flight levels,

but very little of that information is
forwarded to the Weather Bureau.
They know what tops are, and they
can exercise better judgment than we
can. The business pilot, while plan-
ning a flight, has available only a few
surface reports of widely scattered
weather observations. The Weather
Bureau personnel trained, experienced
and conscientious as they are, have in-
sufficient information for accurate re-
porting and forecasting. As a result,
the pilot needs to learn as much about
individual weathermen as possible to
know which ones are apt to be optimis-
tic and which ones are pessimistic.
[See Roundtable "Weather Planning
for the Business Pilot," this issue.]

"By brief telephone conversation be-
tween Communication Stations, Cen-
ters, and Weather Bureau personnel,
the Weather Bureau personnel could
greatly assist pilots in determining
when, where and how to fly. The ex-
istence of this Air Traffic Control Assn.
was brought to my attention only a few
months ago. I was quite enthusiastic
about this group and its objective. You
know more about traffic control prob-
lems and the probable solutions than
anyone else in the world. You need a
strong united voice to overcome flashy
efforts of less informed but more vocally
prolific individuals or organizations
who may speak in the interest of air
traffic control."

(Continued on page 50)

The overhaul
of GO series
LYCOMING
engines is our
business—not
a sideline.



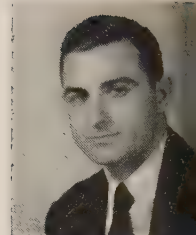
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GRanite 4-1001

SAFETY

Information on developments affecting safety, accounts of actual experiences, also material compiled and edited from leading air safety publications by Richard W. Groux, Assistant to Executive Director, NBAA.



Tactair Autopilot Also "No Limits"

The Tactair T-3 Autopilot installation in the Apache mentioned in February SKYWAYS involves no placards or minimum altitude limitations. The autopilot can be used on take-off, landing and during single engine operations.

The T-3 installation on the Apache controls elevators and ailerons and provides precise directional control through the heading lock which permits the pilot to set the exact course he wishes to fly on a second card incorporated by Tactair in the directional gyro.

Giving Yourself The "Go-Around"

The average of accidents reads something like 80% due to pilot error. How many times have you given yourself the go around when you should have? Very few?

If it looks bad—go around! But don't wait until the configuration is so bad that the aircraft will have the "staggers." In that case, it is better to put it down—head for the boon-docks, ground loop it, even retract the gear. Less people get killed on the ground than in the air from a poor flight configuration.

Oxygen

A new emergency oxygen mask designed to reduce the cost of outfitting pressurized aircraft has been developed

by Sierra Engineering Company, Sierra Madre, California. The mask



unit consists of two assemblies: (1) The oronasal mask itself, made out of vinyl plastic for light weight and strength, with face cushions—seals in three configurations to fit heavy, medium or thin faces, and an elastic-tensioned headband; (2) The breathing tube assembly which contains a microphone and oxygen valve. The mask becomes a part of the crewman's personal property while the breathing tube portion remains with the craft. The inhalation-exhalation valve is also new; only one valve does the work of the three valves in older designs, minimizing the possibility of malfunction and making for light-

er weight. In operation, the crew member takes his place in the cockpit, plugs his mask into the breathing-tube by means of a bayonet connector and is then ready to use the plane's oxygen supply in any emergency. The mask can be donned quickly by merely slipping the elastic-tensioned headband over the head. Upon completion of the flight plan he disconnects and takes with him only the relatively inexpensive face mask, leaving behind the microphone-valve unit in an attractive container which is provided.

Oil Dilution— (Airwork Bulletin #16)

It is recommended that the oil dilution system be checked to be sure the dilution valve is operating correctly, and the fuel flow is correct. The fuel flow should be 1 to 2 quarts of fuel per minute. This check can be made by disconnecting the oil dilution line, and checking the flow with the valve engaged, with normal operating fuel pressure built up at the carburetor.

OIL DILUTION PROCEDURE:

1. Cylinder Heads, Cool to 180° or lower. Oil temperature, Cool to 50° or below.
2. Run engine 1000 RPM.
3. Dilution; 1 to 4 minutes normal. Only if under 0° should more than 4 minutes be used.
4. At low temperature 0°-10° procedure should be exercised after engine

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luted. Run engine at 1500 RPM, over prop control to high pitch position at least 3 times.

Stop engine immediately at end of dilution period.

STARTING ENGINE:

normal cold engine start should be made.

over dilution could cause a fluctuation, or drop in oil pressure at warm up. Oil pressure should be carefully watched.

TESTS:

remove oil screen and clean 1 to 2 hours after first dilution. Repeat this inspection and cleaning at frequent intervals until sludge or carbon no longer collects.

after dilution is started it should be continued continually during cold weather. Dilution time to vary according to temperature.

Aileron Gap Strip As To DC-3 Safety

lowest contribution to added safety in operating the DC-3 is the Aileron Gap Strip Kit, by Garrett Corporation's Research Aviation Service Div., Los Angeles.

test flights indicate it reduces the stalling speed of a DC-3 by seven to ten miles per hour. This makes possible shorter take-offs and landings, as well as an increased rate and angle of climb.

The kit consists of specially designed aluminum strips fastened to the top trailing edge of the DC-3 wing. They create the large longitudinal opening between the wing and the aileron, bringing it into conformance with the relatively smaller gap on the underside.

Installation of the gap strip makes stall control effective during conditions when the airplane is stalled, as shown. This eliminates the so-called "uncontrollable roll" so frequently associated with stalls in this type of aircraft. Also evident was greatly increased operational safety in the event of a single engine go-around."

Research's Aileron Gap Strip Kit has been approved by the CAA for all DC-3s up to and including 26,900 hours.

Anti-Collision Safety Closer

The whole story of anti-collision safety has been studded with built-in obstacles of technical perfection, ideal applications, overly-broad applications. The once-abandoned field of electronic perception and the newer field of infra-red system of proximity-warning indicators (PWI) has suffered from desire to cover all angles of approach from an unfathomable willingness to accept a range standard (as low as 100 miles) wholly unrealistic in view of today's high-rate closure speeds.

The problem is now being attacked in the most obvious and practical way of all, an approach familiar to us but heretofore not emphasized, the use of airborne weather radar. It is due RCA and IT&T (creators

of TACAN, TACAN Data link and ILS) for severing the Gordian knot, providing effective anti-collision protection adaptable to today's aircraft.

Statistically, it may not be true that most mid-air collisions have been in the head-on or almost head-on quadrant. Like statistics on women drivers quoted by insurance companies, the whole story is not told, because no one knows how many such overtaking or tangent-course collisions were the result of just plain "not-looking." In such instances, it takes only one crew looking to avoid a collision in the longer time intervals available for recognition, reaction and effective change of course.

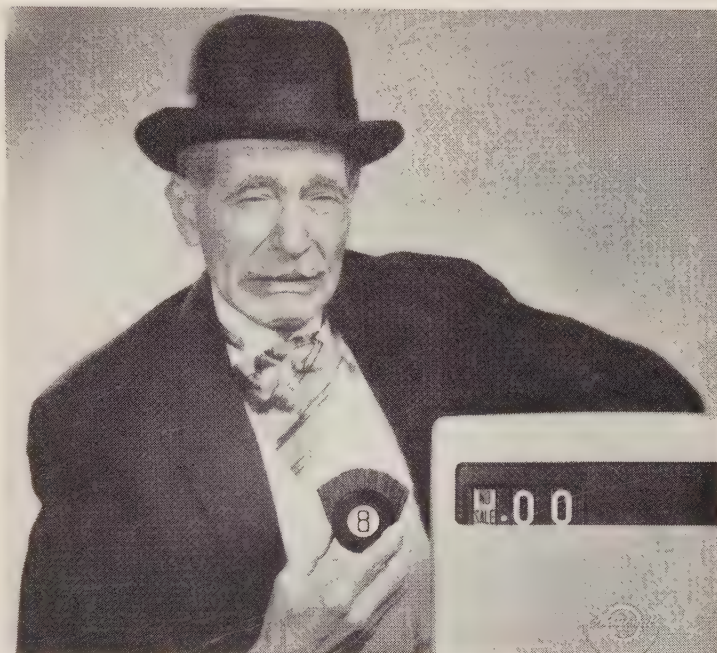
It is in the head-on quarter that the situation is rapidly getting beyond human capabilities in terms of higher closure speeds and greater VFR congestion.

RCA proposes to modify their C-band weather radar to give target range information within the limited arc of their scan. IT&T ruled out "complete 360° coverage for reasons of equipment complexity and cost and concentrated on an arrangement which keeps the pilot aware of dangers in his path," according to Henri Busignies, president of IT&T, which is developing their device.

Although delivery is not promised

NEWS BULLETIN FOR MANUFACTURERS:

Grows Hair on Billiard Ball — No Sale!



HISTORIC RESTORER LACKS DISTRIBUTION

A Hair Restorer, so potent it grows crew-cuts on billiard balls, is not being sold because its maker has no field distribution, it was learned today.

Thus, Manufacturer Bertram B. B. Botts, Esq., is in the frustrating position of enjoying few, if any, sales with a product potentially worth billions. Incidentally, he also is up to his neck in Hair Restorer and crew-cut billiard balls.

Mr. Aviation Manufacturer, if you have a fine product but poor distribution, there may be a moral here for YOU. In the Jet Age, your problems will multiply as never before. Users of jet equipment will require you — perhaps by contract — to guarantee never-failing parts support in the field.

Southwest Airmotive can't handle Hair Restorer, but in the distribution of aircraft and engine units and components,

we have one of flying's most capable and experienced teams. We are boosting sales and improving relationships between manufacturers and their airline and private aviation customers throughout Midwestern and Southwestern USA.

To the 25 leading manufacturers whom we now represent, we have brought around-the-clock, personal field contact and liaison; longer production lead-time; advertising, and effective on-the-spot inventory and salesmanship.

To the customer, we have brought convenience; a vital "second source"; shorter lead-time, and savings in inventory, freight, and obsolescence, to name but a few of the benefits.

Should you not be satisfied with your own distribution, contact: Marketing Manager, Southwest Airmotive Distribution Division, Love Field, Dallas, Texas.

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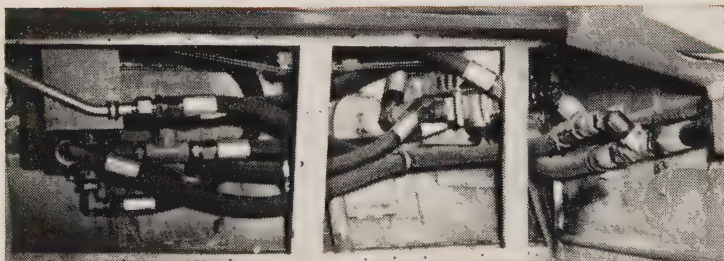


"We Standardized on Aeroquip Hose Lines for All Emergency and Routine Maintenance"

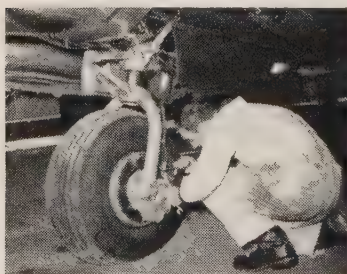
**Reports Fred Keyes, Service Manager,
Bay Aviation Services Co., San Francisco**

Aircraft service experience at Bay Aviation Services Co., operator of the Executive Aircraft Terminal at San Francisco's International Airport, ranges from the C-124 Globemaster to the Piper Cub. But whatever the plane, Bay Aviation mechanics use Aeroquip Hose and Reusable Fittings in their maintenance shop for all engine and airframe fluid lines.

Whether you own, operate or service aircraft, it pays to standardize on dependable Aeroquip Hose Lines with money-saving reusable fittings.



Bay Aviation modified the cross feed fuel system on a Lockheed Lodestar using Aeroquip Flexible Hose Lines, seen here in a baggage compartment.



This Bay Aviation mechanic is installing Aeroquip Hose Lines on the brake system of a Twin Beech.



Here, an Aeroquip Flexible Hose Line is being installed on the vacuum pump of a DC-3 engine.



Aeroquip

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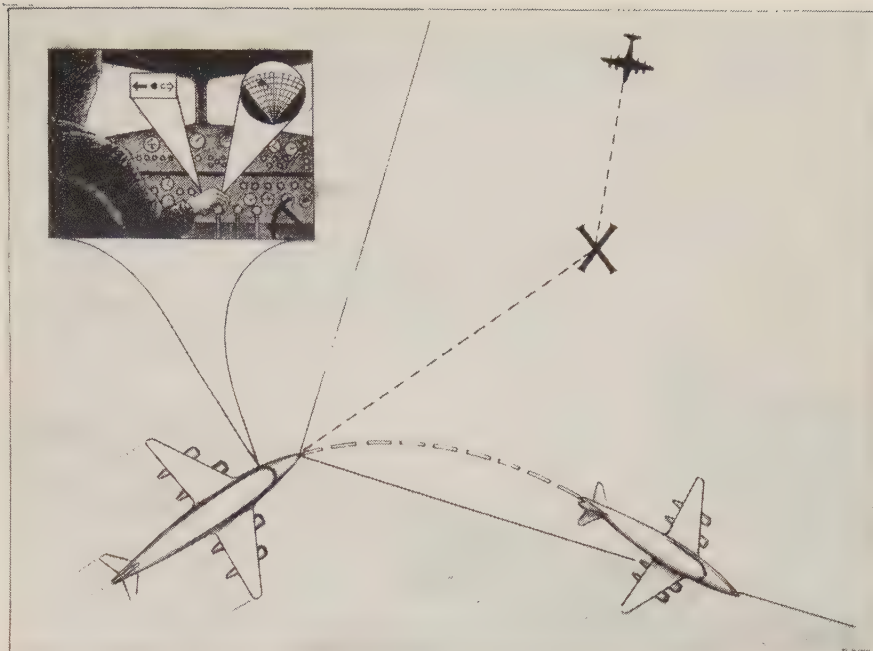
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Before the end of 1959, the basic tenet of these designs suggests that it will provide any effective availability of the competitive PWI systems proposed. The self-contained equipments which require no cooperation from the ground or other aircraft and which utilizes neither radar for its "eyes," provides sufficient warning for planes approaching at almost twice the speed of sound at range up to 8 miles!

With the IT&T system, four miniaturized antennas receive the radar impulses that have searched a 90-degree, fan-shaped sector extending from the tail of the plane. The impulses feed an electronic "brain" with data necessary to compute the hazard and the possibility of collision—all within two seconds.

The computer determines the course of safety designated by a red arrow or indicator. A warning horn alerts the pilot who veers the plane in the direction indicated.

The relatively low-weight of the three-pound equipment is obtained by integrating miniaturized components with existing radar. Although the quoted weight is actually high for smaller than airline-class multi-engine aircraft, the usual effect of a broadened market should motivate development towards an even lighter, more widely purchasable equipment. It is important that a start has been made and since it has been predominantly the heavier commercial aircraft that have run down the



COCKPIT DISPLAY tells pilot which way to turn to avert a possible mid-air collision. Employing weather radar already in many business and airline aircraft, the system indicators (above) tell pilot in this instance to veer right. The inset shows the arrow directional signals and the radar scope in the cockpit. The radar blip, resembling a polliwog, gives the position of the potential threat as well as the best evasive direction.

lighter, slower ones, the presence of even a fair proportion of large aircraft so equipped promises better safety for all sizes of airborne craft.

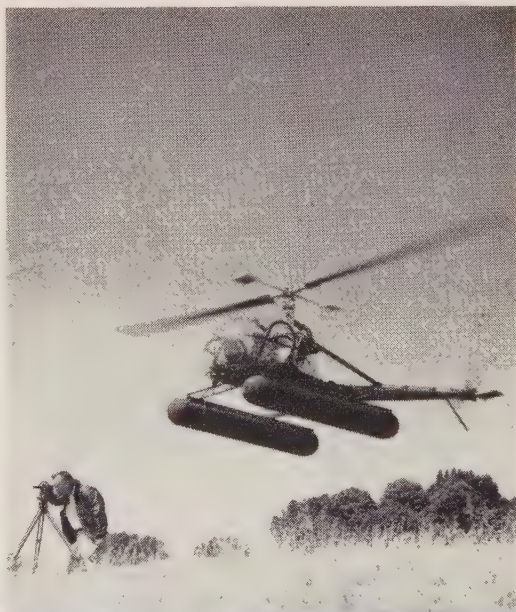
The system is designed for easy maintenance and can be operated with a minimum of training.

(Continued on page 58)

For over ten years Hiller helicopters have been designed and produced according to an uncompromising policy of *dependability*. Benefits of that policy are borne out in the records from hundreds of thousands of military and civilian flight hours throughout the world.

They have documented:

- Lowest operating cost
- Highest flight and landing load factors
- Record of safety unequalled in the category



DEPENDABILITY: doctrine of the Hiller 12-C*

* NOW AVAILABLE WITH INCREASED HORSEPOWER.

The 12-C could be a key element for increased output and profits in your business. Contact our Commercial Sales Division for complete information.



HILLER HELICOPTERS

PALO ALTO, CALIFORNIA



ART WILSON AND APACHE, third business plane for electrical contracting firm, Wilson & Somerville, St. Thomas, Ontario. Says Wilson: "Aircraft have more than justified themselves in our business. I've found that I can look in on three different jobs in three different parts of the province in the same day." Firm bought first business plane seven years ago to aid in handling expanding and diversified, scattered jobs.

Combined Canadian Operation

Mel Simpson, Jr., vice-president of Combined Enterprises Ltd., is a Canadian businessman who appreciates the advantages of the company aircraft. When Combined Enterprises first decided to purchase their Beechcraft Super 18, they estimated an annual utilization of between 300 and 400 hours. In actual practice however, they are logging closer to 1,000 hours per year on it. Where do they go?

"We use Malton Airport for our home base," said Simpson. "Most of our trips are between Toronto, Montreal, New York and Chicago. Those and our periodic sales trips between some 24 branch offices across the country."

Of course, there have been some exotic trips to Canada's west coast, and into the American south-west. Perhaps the most interesting of these was to Cornerbrook, Newfoundland.

"We used the landing strip at Deer Lake, 20 miles from Cornerbrook. Strictly a VFR operation here. We had to use Stephenville as an alternate. Which took a bit of cooperation from the USAF, Stephenville is one of their AF bases."

According to Simpson, facilities for business aircraft are woefully lacking at most Canadian airports. Maintenance facilities, hangar space, minor repair items are totally missing at some places. This is a situation different from most American business ports-of-call where the itinerant airborne executive's needs are taken care of starting from the time he shuts down. The sole exception to the rule in Canada is at Montreal where Timmins Aviation Ltd.

supplies a catering service for visiting business aircraft.

The bulk of the servicing and maintenance on the Combined Enterprises' Super 18 is done right at the Toronto home base by Jack Lindsay, engineer and co-pilot. According to Dave Unger, company pilot responsible for the aircraft, the major inspections are done on a co-operative basis with other firms' aircraft engineers and mechanics. As to the actual flying job, Unger reports that his Super 18 is a piece of cake to operate. One reason being the complete airlines complement of radio equipment carried.

Is the present-day business aircraft ideal for the job? According to Mel Simpson, the advantages to his business are clear-cut on stages of 600 to 700 miles. Beyond that, however, he'd just as soon travel via commercial airlines.

"I think our airplane is the best answer, even though it isn't the complete answer. What we'd like to see in the market is something carrying ten passengers, capable of 250 to 270 knots, pressurized to get over the weather, and with a range of 2,000 miles. They haven't built it yet."

Color Blindness Allowances

The Department of Transport has announced that restricted private licenses are now being issued in Canada to allow color blind applicants to fly. The only stipulation here is that the person be able to detect the difference between red and green.

Student permits and private pilot licenses issued under the new condi-

tions will be valid for day flying only. Further, when operating out of a controlled airfield, or on controlled airways, the aircraft must have a functioning two-way radio for communication with the tower.

Said C. T. Travers, Controller Civil Air Regulations: "This is not lowering of the requirements for private licenses, and visual acuity standards have not been changed. It merely affects those persons who are partially color blind."

Sault Ste. Marie Airport

The DoT has awarded a \$1,891,843 contract to a Quebec construction firm for the building of two runways for an airport to serve Sault Ste. Marie, Ontario.

Work on the site, located nine miles from the centre of the city, will start as soon as machinery and equipment can be moved in. At present, the Ontario town is being served by the Kinross Airport at Sault Ste. Marie, Mich., on the U.S. side of the St. Mary's River.

Each asphalt runway will be 6,000 feet long by 200 feet wide with concrete ends. Taxi strips will run parallel to the runways, which can be extended in the future if necessary. An air terminal building planned for the intersection of the two runways has not been contracted for as yet.

Toronto Malton Grows

A ten-year, \$25,000,000 expansion program for Toronto's Malton Airport was revealed last month by Transport Minister George Hees. The plans include construction of:

A modern five-story terminal building with control tower equipped with the latest in approach control devices.

Underground approaches to the runways and ramp from the terminal building.

Hydrant-fueling outlets to be installed on the ramps. Operating on a common pressure system, these hydrants will dispense different types of fuel.

J. R. Baldwin, Deputy Transport Minister, said that a start on the new terminal building will be made by late 1958.

Spartan Flies Mid-Canada Line

Start of transport operations along the Mid-Canada Line with Vertol 42-A helicopters marks milestone for first decade of Spartan Air Services Limited Ottawa.

Spartan crews are operating the Vertol on the warning network, airlifting personnel and supplies along the Line from Hudson Bay to Labrador.

The helicopters, first 42-A's to be civilly licensed in North America, are a commercial model of the military H-21.

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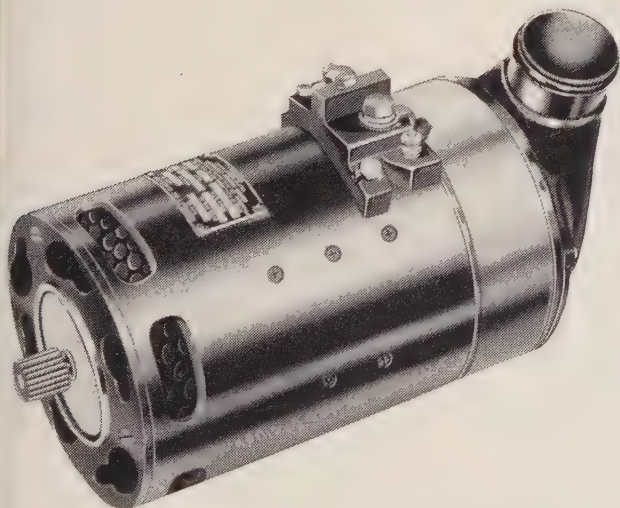
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regardless of the size of your airplane, Bendix Red Bank is a DC generator specifically designed to meet your needs, plus the necessary regulating and control equipment. You can count on these generators for long life, extreme dependability, and maximum performance.

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Canadian Distributor: Aviation Electric, Ltd., P.O. Box 6102, Montreal, Que.
Export Sales & Service: Bendix International, 205 E. 42nd St., New York 17, N. Y.



Red Bank Division



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AIRCRAFT MAKE AND MODEL	ENGINE MAKE AND MODEL	APPLICABLE BENDIX DC GENERATOR TYPE
Aero Commander.....520	Lycos.....GO-435-C2	30B24
560	GO-480-D1A	30B24
	GO-480-D1C	30B24
	GO-480-C1B6	30B24
680	GSO-480-A1A-6	30B33, 30B24
Beech.....A45 (YT-34)	Cont.....E225-8	30B24
H-35 Bonanza	O-470-G	30E22
D-18S & E, 18S super, 18 twin	P & W.....R985-AN4, AN14B & B5	30E16, 30E01
50, 50B & 50C	Lycos.....GO-435-C2, C2D6, or C2B	30B33, 30B24
	GO-480-F6, F1A6	30B33, 30B24
	C2C6 or C2D6	30B33, 30B24
D-50	GO-480	30B33, 30B24
E-50	GSO-480	30B33, 30B24
G-35	Cont.....E-225-8	30B24
Cessna.....180	Cont.....O-470-A or K	30E22
182	O-470-L	30E22
190	W-670-23	30E01
305A & B	O-470-11 or 15	30B24
310	O-470-B or M	30E22
321	O-470-2	30B24
620	GSO-526-A	30B33, 30B24
Convair.....240, 340	P & W, R-2800-CA-15-18, CB16-17	30E02
440	R-2800-CB-17	30E02
Curtiss.....C-46	P & W.....R-2800-43	30E16
de Havilland, Beaver DHC-2	P & W.....R-985-AN6B	30E16
Otter DHC-3	R-1340-SIH1-G	30E16
Douglas.....DC-3	P & W.....R-1830-92	30E16
DC-3	P & W.....R-1830-75 & 94	30E20-11 30E07-11
DC-6	R-2800-CB-16, -17	30E02
DC-7	WR.....3350	30E02
Fairchild.....C-82	P & W.....R-2800-85	30E02
Grummond...Widgeon G-44	Ranger.....6-440-C5	30E01
G-73	P & W.....R-1340-S3H1	30E01, 30E16
Lockheed...Constellation	WR.....3350	30E02
Lodestar	P & W.....R-1830-75 or 94	30E07-11 30E20-11
Learstar	P & W, R-2800-83-AM-10	30E02
Ventura	R-2800-83 or CB-16	30E02
Super-Ventura		
Martin.....202	P & W, R-2800-CA-3-15-18	30E02
404	R-2800-CB-16	30E02
B-26	R-2800-43, or CB-16	30E02
Piper.....PA-18-150	Lycos.....O-320	30E22
PA-23, PA-24	O-360	30E22
PA-22-150	O-320	30E22
Taylorcraft.....400, 500	Cont.....O-470-J	30E22
Topper, Sea Bird	O-470-J	30E22
Vickers-Armstrongs...Viscount	RR.....Dart 510	30E02

BENDIX RED BANK DC GENERATOR PERFORMANCE DATA

TYPE NO.	NOMINAL RATING AMPS.	SPEED RANGE—RPM	APPROX. WT. LBS.
30B24	50	4000—8000	14
30B33	150	4700—8000	28
30E01	50	2200—4500	24
30E02	300	3450—8500	62
30E07-11	200	3000—8000	45
30E16	100	2500—4500	39
30E20-11	300	4000—8000	46
30E22-1	50	4000—8000	14
30E22-2	(Same as 30E22-1 Except Clockwise Rotation)		

Calgary Busy With Corporate Flying

Calgary's McCall Field is considered to be the home base for more corporate aircraft than any other airport in Canada. There are upward of 100 non-commercial, non-military aircraft stationed here. Their dollar contribution to the economy of the Foothills City runs into millions of dollars every year.

Maintenance and operation of business aircraft from the Calgary airport is a major secondary industry. This is so because of every representative billion dollars invested in this city, a large proportion is laid out in transportation facilities.

A good many jobs depend entirely on the decision and ability of companies to find their way about north-western Canada by air. A measure of the extent to which these jobs are dependent on business aircraft operation is evidenced by the fact that McCall Field supplied more than 3,000,000 gallons of gasoline and upwards of 17,000 gallons of oil to aircraft operating in the area.

McCall Field offers the best in meteorological, navigational aid and general aviation facilities. Such companies as Mannix Construction, Foothills Aviation, Chinook Flying Services; or large companies such as Imperial Oil, Royalite, Shell, Home Oil, all of whom operate out of McCall, will recommend Calgary as a field.

The value of aircraft privately owned and operated at McCall Field is estimated at around \$10 million. Some of

the aircraft being utilized are: Cascade Drilling Co.'s two Cessna 180's; Imperial Oil's DC-3 Dakota, two DHC-3 Otters and a DHC-2 Beaver; while Mannix Construction has a Lodestar and a Cessna.

Pacific Petroleum operates two Lodestars and a Cessna 195; while Rading & Bates Drilling Co. has a Cessna 180 and a Bonanza. De Havilland Doves are popular: Sun Oil operates one, Shell Oil another. Socony Vacuum Exploration has a Beech 18, a Beaver and a Cessna, while the Sproule Bearing Supply firm has a Stinson 165.

Rudy Strick, maintenance chief of the Mannix aviation division said: "As far as we're concerned, a plane is like a bulldozer. We're in the construction business, and we use our equipment to get things built. A plane is a machine we use to get somebody or something where it's most needed in the fastest possible time."

That is why the business aircraft is here to stay in the Calgary region. It is also why Calgary is recognized as the centre of western Canada's aviation for business industry.

Red Tape Manual

The 1958 revised edition of "Admission of Aircraft to Canada" has been issued and is now available from the Canadian Government Travel Bureau, Ottawa, free of charge.

The handy 19-page booklet gives information on how to enter and leave

Canada (advance notice of arrival must be given at all airports in Canada except at Dorval, Montreal; or Malton, Toronto), flight plan requirements, formalities on landing and departure, aids to navigation, a list of all airports and customs offices in Canada and other information for fliers planning to enter Canada by air.

The booklet also contains a reference map showing areas for which air navigation charts are available. The chart can be purchased from the Canadian government at a nominal cost.

ATC Radar Control

New radar equipment, the Decca MR-75 Short Range Surveillance Radar, is being put into service at four major Canadian airports.

The surveillance radar, which provides a constant picture of the position of all aircraft within a radius of 40 miles of the airport, has been in use at Montreal's Dorval Airport since early December. Final testing of the same type of equipment is now being carried out at Toronto and Winnipeg airports and installation at Vancouver airport is started.

It will be used at the four terminals until better and more powerful long range radar control equipment is installed. This new equipment which is now on order by the Transport Department, will be installed at 15 major Canadian airports. The first of these installations will begin this spring.

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Halifax International

Work on the airfield at Kelly Lake, to be known as Halifax International Airport, is progressing rapidly. Located some 22 miles from Halifax, the new airport will replace, for civil operations, the airport at HMCS Shearwater, near Dartmouth, Nova Scotia. Construction of runways has been under way for over a year. The longest runway, 8,800 feet, is 200 feet longer than the main runway at Gander.

Meanwhile the DoT has called for tenders for the construction of a terminal building at the new Kelly Lake airport. Cost of the building is expected to be in the neighborhood of \$4,000,000. The Department hopes to have the building enclosed prior to next winter and the entire terminal completed by the end of 1959. The new Halifax International Airport should be in operation in early 1960.

Canadian Pioneers Retire

F. L. Banghart, pioneer Canadian aviator, ended his long career in civil aviation when he retired recently as airport manager at London, Ontario. Mr. Banghart's flying career dates back to World War I when he learned to fly with the Royal Flying Corps, and later instructed at Camp Borden, Ontario.

Another well-known pioneer in Canadian civil aviation, Inspector Joseph C. Folkins, Moncton District, retired from the Department of Transport after 17 years' service. Joe Folkins served with the Royal Flying Corps as a ground crew during World War I. He is still an active pilot, and his license with instrument rating covers four-engine aircraft.

50th Anniversary

A national council representing government departments, military services, aviation industry and associations connected with flying has been formed to develop and coordinate activities across the Dominion during 1959 in commemoration of the 50th anniversary of powered flight in Canada.

The first flight in Canada—that also marked the first flight in the British Commonwealth by a British subject—was made by the Hon. J. A. D. McCurdy off the ice at Baddeck, Nova Scotia, on Feb. 23, 1909.

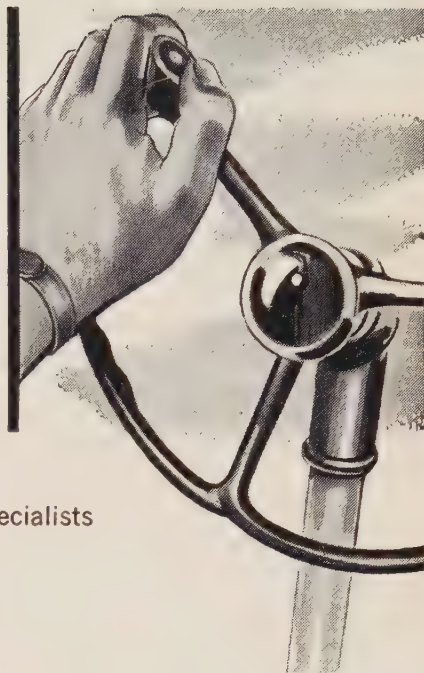
Committees will be established in the major centres of Canada to develop programs and celebrations in all local areas in liaison with the National Council.

Control Locks Order

In a recent air navigation order, the C.T. decreed that external flying control locks will not be applied to an aircraft unless designed to give unmistakable indication to the pilot in the cockpit that the lock is engaged; it is so colored or marked as to be clearly visible from the ground.

Further, the order states that no aircraft will be equipped with a control lock that is capable of becoming engaged while the aircraft is in flight.

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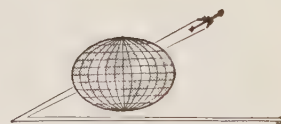


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(Continued from page 41)

New York Center Preferential Routes

Effective February 22, 1958, this Bulletin superseded and cancelled all previous Information Bulletins concerned with Preferential Routes issued by the New York Air Route Traffic Control Center.

The establishment of these Preferen-

tial Routes is not intended to preclude authorization for flight via High-Altitude Airways but the Preferential Routes will be used for all climbs to and descents from cruising altitudes required for such operation.

Operators are requested to omit from flight plans any route between the airport of departure and the initial fixes shown in this bulletin. These routes will be specified in each departure clearance.

Idlewild, Mitchel, Floyd Bennett Airports

Departures for/via	Area/Airport	Arrivals from/via
NORTH		
BAY-ILT V91 V91E	ALB or beyond	V91 Syosset-HEM-LDO drct
NORTHEAST		
BAY V167	HFD or beyond	V16 V46 SJX-HEM-LDO drct
Fire Is. V16	BOS or beyond	V16 V46 SJX-HEM-LDO drct
EAST		
Fire Is. V16 V30	ACK or beyond	V46 SJX-HEM-LDO drct
SOUTH		
XWF V16 V1	ORF or beyond	V1 V16 Pt Pleasant-Scotland drct
SOUTHWEST		
XWF V16 V238 V166	PHL	V166 V30 V1
XWF V16 ADW drct	DCA	1. V123 V166 V30 V1 2. V44 V16 Pt. Pleasant-Scotland drct See route from DCA
XWF V16	beyond DCA	
WEST		
STW V226 V58 EWC drct	AGC	V12 V162 V168 V30 V1
STW V226 V58 EWC drct	PIT	V276 V106 V168 V30 V1
STW V226 V188 V119 V12	beyond PIT	V12 V162 V168 V30 V1
STW V226 V188 V232 V14	CIE or beyond	V6 SEG V168 V30 V1
NORTHWEST		
STW V226 V188 V26 V90	DET or beyond	V116 V170 V168 V30 V1
STW V226 V188 V184 V116	CHI or beyond	V6 SEG V168 V30 V1
STW V153 V36	BUF or beyond	V72/V36 V147 V168 V30 V1
BAY-ILT V34	ROC or beyond	V147 V168 V30 V1
BAY-ILT V34 V153	SYR or beyond	V29 V34 V91 Syosset-HEM-LDO drct

LaGuardia Airport

Departures for/via	Area/Airport	Arrivals from/via
NORTH		
ILT V91 V91E	ALB or beyond	V91 V123
NORTHEAST		
BAY V167	HFD or beyond	V3 V123
BAY V167 V34 V16	BOS or beyond	V3 V123
EAST		
SJX V46	ACK or beyond	V46 GNC drct
SOUTH		
SJX V46 V16 V1	ORF or beyond	V1 Asbury-COL-Walling V123

SOUTHWEST

T R72 B20
T R72 V256 V3 V93
T R72 V256 V3 RVD drct
T R72 V256 V3 V39 V140

PHL V166 V123
BAL V123
DCA V123
beyond DCA V123

WEST

T R72 V256 V3 V166 MRB-FRR LOU or beyond V106 V10 V123
4 V45 V4
T R72 V256 V3 V166 MRB-FRR CIN or beyond V106 V10 V123
4 V128S
ent'n V36 V58 EWC drct AGC V106 V10 V123
ent'n V36 V58 EWC drct PIT V276 V106 V10 V123
ent'n V36 V58 V188 V119 V12 beyond PIT V106 V10 V123
ent'n V36 V58 V188 V232 V14 CLE or beyond V6 V10 V123

NORTHWEST

ent'n V116 V14N V188 V26 V90 DET or beyond V116 V164 V164S V10 V123
ent'n V116 CHI or beyond V6 V10 V123
ent'n V36 BUF or beyond V72/V36 V147 V164 V10 V123
ent'n V36 V29 V34 ROC or beyond V147 V164 V10 V123
ent'n V36 V153 SYR or beyond V29 V34 West Pt
HPN/LOM-RWC V123

Newark, Teterboro Airports

Departures for/via	Area/Airport	Arrivals from/via
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NORTH

H V39 V91E	ALB or beyond	V91 POU-Greenw'd-PNJ drct
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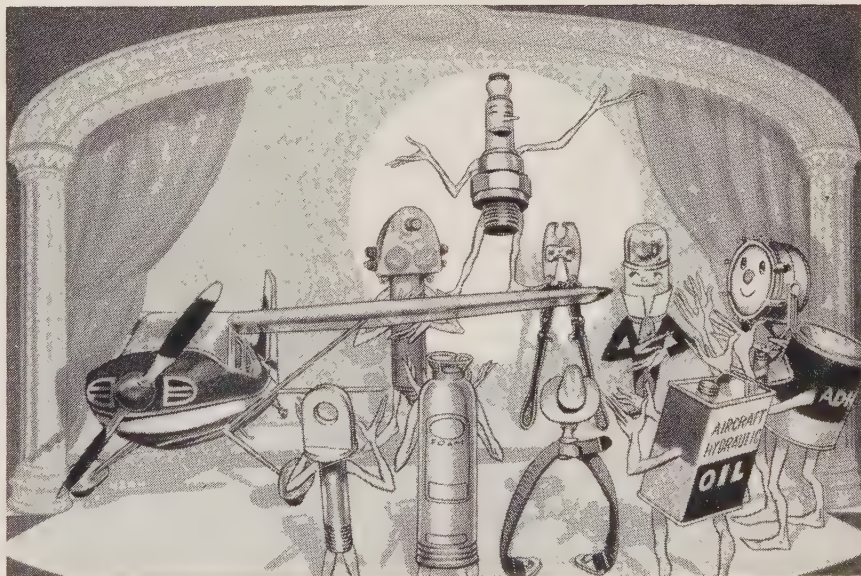
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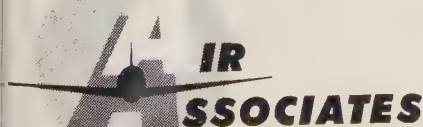
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BCH V39 V58
BCH V39 V58 V130 V16

COL-Asbury V1

CAT R72 B20
CAT R72 V256 V3 V93
CAT R72 V256 V3 RVD dret
CAT R72 V256 V3 V39 V140

CAT R72 V256 V3 V166 MRB-FRR LOU or beyond
V174 V45 V4

CAT R72 V256 V3 V166 MRB-FRR CIN or beyond
V174 V128S

STW V226 V58 EWC dret

STW V226 V58 EWC dret

STW V226 V188 V119 V12

STW V226 V188 V232 V14

STW V226 V188 V26 V90

STW V226 V188 V184 V116

STW V153 V36

STW V153 V29 V34

STW V153 V29

STW V153

NORTHEAST

HFD or beyond
BOS or beyond

V58 POU-Greenw'd PNJ dr
V58 POU-Greenw'd PNJ dr

SOUTH

ORF or beyond V1 Asbury-COL-Preston dr

SOUTHWEST

PHL
BAL
DCA
beyond DCA

A7
V123 Pt Deposit A7
V123 Pt Deposit A7
V123 Pt Deposit A7

WEST

V12 V162 V168 V239

V12 V162 V168 V239

AGC
PIT
beyond PIT
CIE or beyond

V12 V162 V168 V239
V276 V106 V168 V239
V12 V162 V168 V239
V6 SEG V168 V239

NORTHWEST

DET or beyond
CHI or beyond
BUF or beyond
ROC or beyond

V116 V170 V168 V239
V6 SEG V168 V239
V72/V36 V147 V168 V239
V34 V252 HUO-Greenw'd
PNJ dret
V252 HUO-Greenw'd PNJ
dret
V29 V252 HUO-Greenw'd
PNJ dret



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Philadelphia International Airport

Departures for/via	Area/Airport	Arrivals from/via
NORTHEAST		
E A7	EWR	CAT R72 B20
NT V166 V123	IGA	CAT R72 B20
NT V166 V30 V1	IDL	XWF V16 V238 V166
OD V140 V16	BOS or beyond	1. V3 V147 2. V16 V238 V166
EAST		
D V238	NBB	V238 V166
SOUTH		
D V239 V1	ORF or beyond	V1 V29 V166
SOUTHWEST		
R V3 V93	BAL	V123 Pt Deposit A7
R V3 RVD drct	DCA	V123 Pt Deposit A7
R V3 V39 V140	beyond DCA	V123 Pt Deposit A7
WEST		
R V3 V166 MRB-FRR V174	LOU or beyond	V12 V29 V166
5 V4		
R V3 V166 MRB-FRR V174	CIN or beyond	V12 V29 V166
28S		
inholds V162S V12 V12N EXA	AGC/PIT	V12 V29 V166
drct		
inholds V162S V12	beyond PIT	V12 V29 V166
NORTHWEST		
inholds V162S V12 V42	CIE or beyond	V6 V33 V12 V29 V166
inholds V162S V12 V42 V26 V90	DET or beyond	V116 V33 V12 V29 V166
W V147	AVP or beyond	V29 V147

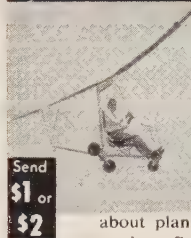
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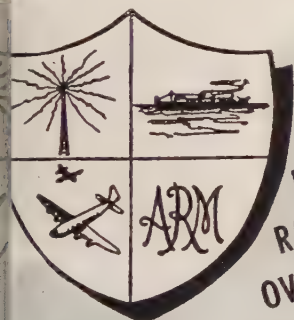
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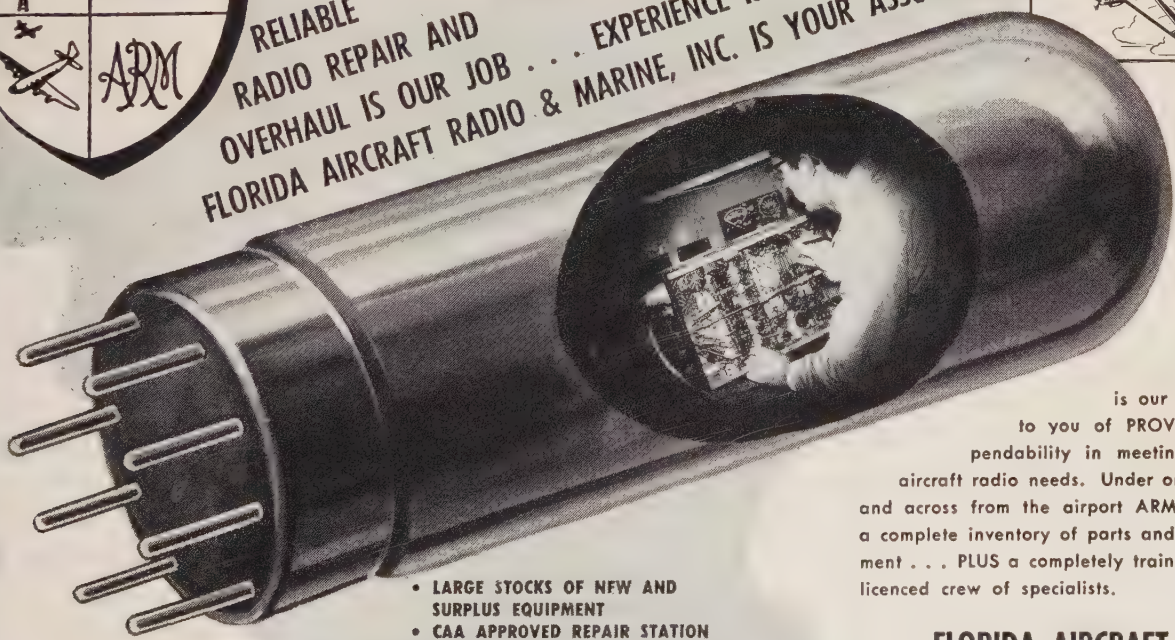
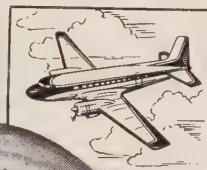
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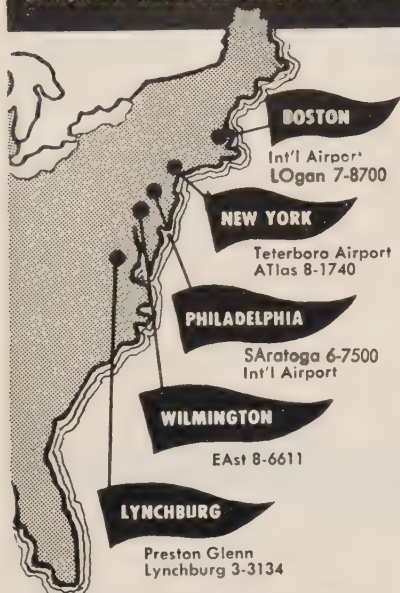
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thirty years of growth . . . modern equipment . . . hundreds of trained technicians . . . expert leadership . . . and a persistent demand for the best . . . that's why hundreds of business aircraft — Cubs and Bonanzas to DC-3's and Conquairs — return to Atlantic for the next jobs.

USED AIRCRAFT

TWIN BEECHCRAFT D-18S. 1946. Hydromatic 22D30 props. TTA 4649 hrs. TTE 160 hrs. Int. —5 chair, front left reversed, headliner, side panels green, green rug in good condition. Ext.—Aluminum with Red speed line. Undersides painted aluminum. Equipment: De-icing equipment, Anti-icing equipment, Windshield Wiper installation, Aux. Gas Tank, control lock, Table, Thermos, Double windows, Flares, Grimes rotating beacon. Co-pilot's panel A/S, ALT Attitude & D/G. Radio: ARC-15C Omni, ARC Course Director, ARC-1 50 channel VHF, Collins 17K 5 channel, LF Range Receiver, Marker Beacon receiver, ARN-7 ADF, Remote compass, ARC F-11 Isolation Amp. Excellent condition. Flaps and control surfaces recovered Dec., 1956.

Price: \$32,500.00 — New York Division

TWIN BEECHCRAFT 18S. P & W 985. Ham. Std. Constant Speeds. TTA 3170 hrs. TTLE: 8 hrs. TIRE: 591 hrs. Interior—Green upholstery, 6 chairs cabin. Ext. Silver with Blue Stripe and Red Pin Stripe. Ailerons, rudder and elevators recovered 1956. Dual Altimeters, Gyros, 50 Gal. Nose Tank, 4 Wing Tanks 206 gals. Radio: Narco Mark II Omnigator, Bendix BC433C ADF, Stancor LF—Transmitter 3023. 5 KC.

Price: \$14,500.00 — Boston Division

CESSNA 310, 1955. Cont. 0-470B, 240 HP, TTA: 890 hrs. TTE 550 hrs. Taxi Light, Ground Service Plug, Fire Ext., Two 25-Amp. Gen. and Voltage Regulators, Co-pilot Pedals & Wheel, Rot. Beacon, Boots on Wings & Horizontal Stabilizer, Prop. Anti-icing, ARC Type 15D Omni, ARC Type T-11B VHF Transmitter modified for 10 channel operation, Collins 37R1 Antenna, ARC Type R-20 Marker Beacon Receiver, Lear ADF-12 with sealed loop, R-89M/ARN-5 6 channel Glide Slope Rec. mod. for 50 channel operation complete with crystals, ARC Model CD-1 Course Director.

Price: \$37,500.00 — Wilmington Division

BONANZA G-35, 1956. Cont. E-225-8, 225 HP. Metal Prop. TT 620 hrs. Ext. Aqua. Blue, White Top, Stripe and Trim Chianti Red. Int. Blue. Gyros, Flight Research Constant Speed Prop Governor, Aux. Tanks, Lear Omnimeter, Super Soundproofing, 50-Amp. Generator (in exch. for std. 35-Amp.) ADF-12.

Price: \$16,500.00 — Philadelphia Division

Round Table

(Continued from page 35)

Each of our planes on departure calls back a complete report of bases, tops, icing, temperatures, etc. This has proved successful and, in fact, brought the corporation at Allegheny Airport closer together. Of course, we can't call the plane unless the pilot is monitoring our frequency, and he'll never be doing that in weather. What has proved very successful is having the ATC boys at Greater Pittsburgh Airport pass along a "flight advisory" forecast. If ATC still has the aircraft in contact, they will pass along our information willingly.

Spengler: Our discussion has been regarding corporation planes. Mr. Murray mentioned 4,000 pilots in Chicago. Would you serve the individual pilot? What would he have to pay?

Murray: It's just as important to smaller operations to know the weather . . . if they're flying a Cessna 180 instead of a Lodestar. We're experimenting now with a service for small plane operators so that they may call us and get essentially the same information. One of the biggest experimental problems is that if some 500 pilots are authorized to use the service, there will have to be enough qualified meteorologists to handle nearly 500 phone calls on a bad flying day. This will also require maybe 50 telephones to handle the business.

Lacey: We're in this business already. It's our belief that the small plane business pilot needs weather forecasts just as much as the big-plane pilots. We haven't gone into the new pilot field, although they probably need our help more than anybody. But, we have found that requests from individual business pilots have been no more frequent than from our corporation pilots. Therefore, we have been able to handle the traffic. And we feel that these pilots need the information more than the airline-type pilot who, most likely, knows more about the weather in the first place. We are in the business at a unit rate. We require, also, that they be subscribers, that they sign up with us. They pay for each special forecast. The unit price, of course, is higher than for full-time service.

Horton: The economic need of private weather service, as far as I'm concerned, depends on the amount of flying done. Someone flying only 150 hours a year wouldn't benefit, economically, from a private weather service, where a plane flying more than 800 hours a year can afford some fringe benefits. Some of our aircraft are based at fields that have no type of weather service available for 150 miles, which means that a phone call has to be made some place or not at all. I've been wondering if a price-per-call basis could be, or had been, adapted to the large corporations, rather than a subscription service per airplane?

Van Liew: Overhead almost precludes this. Private weather services must staff

DeNardo & McFarland Weather Services

1st

private weather service for
business aircraft, serving
over 150 corporation air-
craft.

**Our clients are
our best salesmen.**

These leading firms are users
of the DeNardo & McFarland
services:

**Alcoa
Gulf Oil
Westinghouse**

Here's what S. B. Clawson,
Chief Pilot for Kennedy Valve
Mfg. Co., Elmira, N. Y. says:

"Your weather service has
become a necessary tool
in our operation. The spe-
cialized forecasts have re-
sulted in an average of
92% completion of all
scheduled flights during
the past twelve month
period."

DeNardo & McFarland Weather Services

**Allegheny County Airport,
Dravosburg, Penna.**

Phone: Homestead 2-6464

**Air to ground frequency—123.0
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able personnel . . . and pay them appropriately. We will give a briefing on a cost-per-unit basis, and, as Denardo said, if one of his pilots asks us for a briefing, he's certainly going to get it. As far as prices go, we are sort of playing it by ear, feeling our way. Denardo has established rates.

Lacey: We've been industrial meteorologists for eleven years and have been in aviation casually for six years. We don't know what to charge for a flight briefing. Arbitrarily we set, originally, at \$5 for a briefing. But, on bad weather days our industrial accounts, as the aviation weather briefing requests would snow ball. I've seen our forecasters spend 40 minutes on a briefing. It became impossible to handle the aviation end in this manner. We set up a separate office to be run on an annual subscription basis.

At the same time we decided, also, to set up an office in the New York City area for flight briefings exclusively.

We are still arriving at a price structure. If it's off-field service it's a different rate than if it's on-field. We have a minimum service fee for small plane operators who are not on the field. They pay it on a monthly basis whether or not they use the service.

Denardo: Just what are the rates for these services?

Liew: For the person who flies in a while, we have a minimum monthly fee which covers five forecasts. For an operator who flies some 600

hours a year and has a fleet of aircraft, the rate varies. For two or three airplanes on the field, flying about 50 hours a month, we're quoting \$100 for the first plane, \$50 for the second and \$25 for the third. Someone flying 20 hours per month, VFR only, we'll go higher because VFR forecasting is much tougher than instrument forecasting. A fleet operation of some 15 planes, for instance, must be handled individually. The \$100, \$50, \$25 scale couldn't apply.

Lacey: Everybody's used to the idea of getting weather information "free" from the Weather Bureau. The idea of paying for it hurts a little even though the private service may be found to be better because of the additional attention.

Denardo: We don't take per-briefing forecasts. Our rates are no secret. We have too many persons paying us \$200 or \$300 per month for service to handle a single-briefing business. These are usually requested only when the weather's bad, and that's when our regular accounts need us. Our charge-scale has remained the same since it was first established. We charge \$100 per month for one airplane and \$30 per month for each additional plane at Allegheny County Airport. Any plane off the field, we charge 50 percent of those fees. It provides the pilot who is off the field the opportunity to use the weather service at a reasonable price, taking into

(Continued on page 63)

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National Weather now has the answers to Business Aviation's need for a custom, weather advisory service, pinpointed for your plane, your pilot, and your course.

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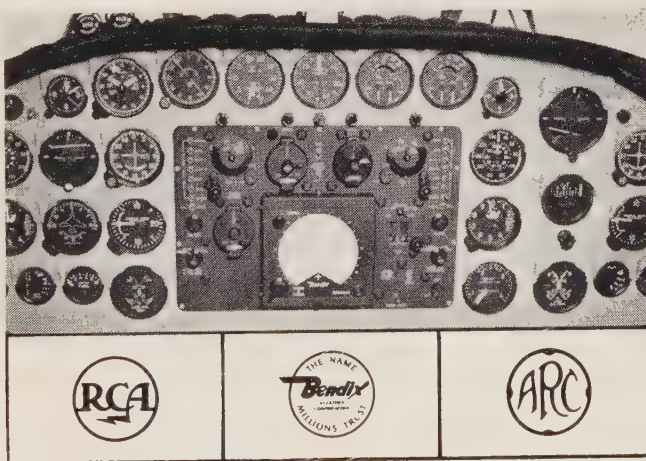
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ELECTRIC COMPANY, INC.



SPERRY

in the business hangar

■ **BAYAIRE AVIONICS, INC.**, International Airport, Oakland, Calif., completed installation of ARC-15D, R-89B Glide Slope Receiver, CA-2 Audio Amplifier, Edge-lighted radio panel, Lear L-2 autopilot, altitude control, approach coupler, Narco MK-2, Narco LFR-3, Narco Sapphire, Lear 3 light Marker in Cessna 310 owned by West End Chemical of Oakland. Pilot is Rod Christensen.

State of California, Fish and Game Dept.'s Super E-18S Beech was equipped with ARC Course Director CD-1, ARC ADF-21, ARC VHF-Omni-15-D, ARC VHF Transmitter-T21, ARC Range Receiver R-

11A, R-89B Glide Slope Receiver, MB-3 Marker Beacon System, CA-1 Audio Amplifier, LVTR-36, control panel, new instrument panel and L-2 autopilot with approach coupler and altitude control. Pilot is Al Reese.

Business Aircraft Distributor's Cessna 310 demonstrator had installation of ARC-15D, R-89B, Glide Slope 6 channel, Lear 2200 MBR Marker Receiver, Narco Mark II Omnigator with external L-R meter and L-2 autopilot with approach coupler and altitude control.

Northern California Thrift Co.'s Cessna 310, piloted by Dwight Tripp, had

eyebrow lighting and new instrument panel installed.

Peter Kiewit and Sons' Cessna 310 had Lear LTRA-6T with Omni and VOR adapter installed. Trace Toovey is pilot.

Standard Oil Co. of California's Viscount had Dual ARC-21A ADF's installed. Crews report excellent operation on the first Viscount installation. Art Walker, chief pilot. Firm's Convair 240 had 300-hour check on all radio equipment.

Trailmobile's Lodestar was given radio equipment revision.

■ **ASSOCIATED RADIO CO.**, Dallas, Tex., installed RCA-AVQ-10 Radar System on Banco de Mexico's DC-3. Chief pilot Maj. Carlos Garduno.

International Paper Co.'s plane had RCA AVQ-50 radar and new nose panel. Collins 51V-3 Glide Slope and 51Z-2 Marker Receiver. Pilots are Carl Lund and George Holland.

Wyandotte Chemical Co.'s DC-3 received RCA AVQ-10 radar, Collins 171 transmitter, speed control, new instrument panel and custom edgelighted radio control panels. Pilot is Charles R. Schenck.

Cities Service Beech E-18 from Shreveport had RCA AVQ-50 radar and Spencer C-4 Compass System installed. Three other E-18's based at Oklahoma City and Bartlesville received same installations.

■ **L. B. SMITH AIRCRAFT CORP.**, Miami, Fla., completed interior and exterior re-furbishing and mechanical modifications of C. B. Wrightman's Lockheed Lodestar.

Orinoco Mining Co.'s DC-3 had 100-hour inspection, interior cleanup and other work.

Rockwell Spring & Axle Co.'s DC-3 had interior re-furbishing.

Aerodex, Inc.'s Twin Beech was rewired and had radio and ship-to-shore telephone installations.

Paul Tishman's Lodestar received radio pair work.

Langenfelter & Son's DC-3 had 100-hour point inspection and modification program.

G. David Schine's Helio Courier received engine change and 100-hr inspection.

Brazilian Aeronautical Commission's 14 SA-16's were inspected and rehabilitated for service in air-sea rescue operations.

■ **GARRETT CORP.'S AIRESEARCH AVIATION SERVICE DIV.**, International Airport, Los Angeles, Calif., installed RCA AVQ-10 radar and Bendix DF-70 ADF's with Douglas blade-type search antennas on Barber Oil Co.'s DC-3. Pilots are Ray Peters and L. Taska.

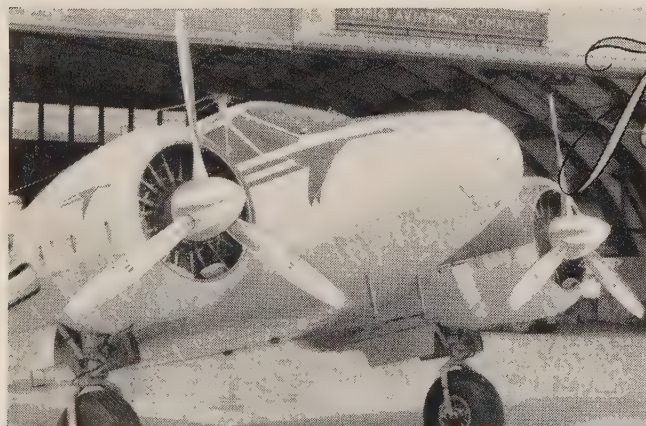
Texas Co.'s D-18 Twin Beech received double engine change, annual re-licensing, 100-hr inspection, exterior painting and interior refurbishing.

CAA's second of five Convair 440's had customized installation of Gas Turbine Power Unit GTP 70-17, RCA AVQ-10 radar. GTP used to power special electronic and electric equipment for flight checking radio navigational and communications facilities.

■ **AIRCRAFT TANK SERVICE INC.**, Burbank, Calif., completed modifying outer wing panels on Murray Corp. of Detroit Convair 240 providing 275 gallons fuel each outer panel. Chief pilot is E. Spencer.

Announcing...

HARTZELL 3-BLADE FEATHERING PROPELLER NOW APPROVED FOR THE C-18S, D-18S, AT-11 BEECHCRAFT, LOCKHEED 12-A AND G-21A GRUMMAN AMPHIBIAN.



Hartzell.

**COVERS
THE
FIELD**

ADVANTAGES

- 1 Feathering—5 seconds, or less. (Automatic, if engine oil pressure fails.)
- 2 Increased useful load due to less propeller weight and feathering feature.
- 3 Substantially better performance than with either present feathering or non-feathering propeller:
 - 3-8 mph increased speed.
 - Over 30% increased single engine climb.
 - 2,000-4,500 feet higher single engine ceiling.
- 4 Less noise and less vibration.
- 5 Low first cost and low maintenance.

SPECIFICATIONS

Model HC-93Z30-2D/10152-5½.

Diameter—95½ inches.

Propeller can be installed on the P & W R-985 Engine without modification.

Weights:

120 lb. propeller
8 lb. spinner
5 lb. Unfeathering Kit

List Prices —

Propeller—\$1,650.00
Spinner—\$150.00-\$225.00
Unfeathering
Kit—\$150.00

Hartzell.

PROPELLER, INC.

PIQUA, OHIO, U.S.A.



ific Pipe Line Construction Co.'s
star had tanks re-sealed. William
hell is chief pilot.

EROTRON RADIO CO., Municipal
ort, Tulsa, Okla., installed dual ARC
, CD-1 Course Director, ARC-DF21,
path, Isolation Amplifier, ARC-210
mitter and custom radio and instru-
panel in Oklahoma Gas & Electric
Aero Commander. Pilot is Roger
ey.

erker Pen Co.'s Beech Super 18,
by Roy Coyle, had elaborate radio
lation consisting of complete Collins
erated Flight System, Collins VHF
unication, Narco 1016, ARC-DF21,
omni, 51Z-2 Marker, 51V Glidepath,
dio system with transistorized speaker
fiers and custom "Edge-Lit" radio and
ment panel.

ies Service Oil Co.'s Lodestar,
d by Al Wells, had AVQ-10 radar
s and calibration.

EDMONT AVIATION, INC., Wins-
alem, N.C., gave 100-hr inspection to
owned by McLean Trucking Co. Pilot
y Wakefield.

B. Belcher and Sons' D18S was in
miscellaneous repairs. Pilot is Cotton
othlin.

andard Products Co.'s chief pilot,
L. Gunther, flew their PA-23 in for
our inspection.

utheast Airlines brought in a DC-3
weighed. Airline's fleet maintenance
adled by Piedmont.

rps of Engineers' DC-3, flown by
affy, was in for a 100-hour inspection.
merican Flyers' had their DC-3 in for
rller repairs.

atham Mfg. Co.'s Mallard received
de wing slot de-icer boots. Chief pilot
le Blazer.

& W Motor Lines' DC-3, flown by
McGhee, was in for installation of
de-icer boots.

land Co.'s Lodestar had miscellane-
engine repairs. Pilot is Carl Styne.

anagement Service's DC-3, flown by
Pilot Hap Wilson, was in for 100-
inspection.

eahontas Fuel Co.'s D18S had 50-hr
ection. Pilot is Bob Amundsen.

lot Freight Carriers' D18S, flown by
Teague, had engine change, exterior
ed and Super 18 wing tips installed.

nsant Coal Co.'s PA-23 had 100-hr
ection on E18S.

READING AVIATION SERVICE,
Municipal Airport, Reading, Pa.,
leted 8,000-hr inspection and conver-
to 28 volts on Kewanee Oil's DC-3,
d by Capt. Frank Auernig. It is
ped with RCA weather avoidance
; nose fitted with McMillan "X" ban
ne.

OUTHWEST AIRMOTIVE CO.,
Field, Tex., completed a double en-
change on D18S of Robert Elliott.

MMERT-WERNER, INC., Lambert
St. Louis, Mo., completed an ex-
paint job, engine change, X-ray of
wells, weight and balance, gas tank
haul, wing inspection, 1,000-hr air-
inspection and other work on Winn-
s D18S at R-W, Pompano Beach, Fla.
wnson Cookie Co.'s twin Beechcraft
down into Toledo by Bill Haddock for
lation of ARC-1 50-channel trans-

ceiver and other radio work.

Carrier Corp.'s DC-3 had light-weight
landing gear doors installed. Floyd Gra-
ham is pilot.

Olin Industries' DC-3 had a 20,000
BTU auxiliary heater installed. Chief pilot
is Bill Heaton.

■ **PLANESERVICE**, Van Nuys Airport,
Calif., completed ADF installation on
Emsco Rice Mills' Bonanza. J. E. Smith is
pilot.

David Myers, Salinas, Calif., had first
CAA-approved Tactair Autopilot installa-
tion on his A-35 Bonanza.

Richard D. Morgan's Bonanza had a
Narco Mark II Omnigator installed.

Edgerton, Germeshausen & Geier,
Inc., had a Tactair installation on its G-35

Bonanza. Boyd Carpenter is the pilot.

Narco Mark II installations were made
in Bud Bright's Bonanza and Dr. Kenneth
F. Smith's Cessna 182.

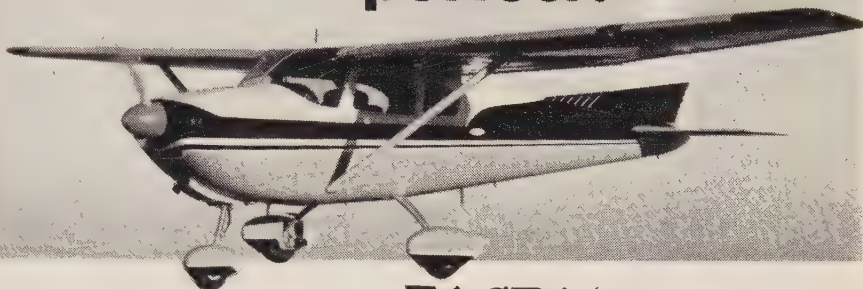
■ **AERO TRADES, INC.**, Ronkonkoma,
N.Y., installed RCA radar in News Syndi-
cate, Inc.'s, plane. Chief pilot is William
(Buster) Warner.

Cornell Dubilier Electric Corp.'s
DC-3 received a major overhaul and mis-
cellaneous work. Chief pilot is George Her-
sam.

Columbia Gas System Service, Inc.,
had modifications made to their Lodestar
including Goodyear wheels and brakes,
rudder spring cables, Westinghouse Dece-
lostast Units installations. Arthur Stewart
is chief pilot.

MAKES A FINE AIRPLANE

perfect!



CESSNA SKYLANE with TACTAIR AUTOPILOT

Featured by Cessna as Optional Equipment

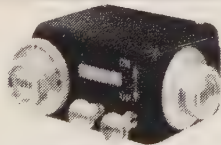
Until you fly the Cessna Skylane equipped with the Tactair Autopilot you have no conception of how effort-
less and relaxing flying can be. The
smooth pneumatic controls take the
bounce out of rough air. The amazing
Tactair Heading Lock holds you pre-
cisely on course, taking all the effort
out of flying VOR, ADF, or ILS
courses.

Now you can order the great new

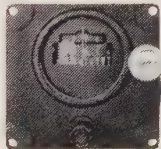
1958 Cessna Skylane (182 and 180
also) equipped with the Tactair Auto-
pilot as optional factory-installed equip-
ment. Or you can quickly and easily
install the Tactair in your present
Cessna Skylane, 182 or 180.

Cessna's choice of Tactair followed
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tribute to Tactair's proven reliability
and performance. Available soon on
the Cessna 310, too.

A FAR SUPERIOR AUTOPILOT SYSTEM



The Tactair T-3 operates pneumatically with no
warm-up, no power drain, no tubes—so mechanically
simple, yet so "human," that it makes any other
flight system obsolete. Weighs only 7.3 pounds, sim-
ple to install, virtually maintenance-free.



WITH TRUE-READING HEADING LOCK

Tactair's heading lock works on the DG with no
confusing zero heading. Merely set the upper card to
course desired and you fly that course precisely. No
complicated resetting for new course necessary.

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INCORPORATED
AUTOPILOT DIVISION

AIRCRAFT PRODUCTS CO.
BRIDGEPORT, PENNSYLVANIA

For 18 Years Specialists in Precision Aircraft Pneumatic and Hydraulic Controls

Safety

(Continued from page 45)

Air Force Confirms Value Of Crash-Fire Helicopter Use

If any confirmation is needed of the value of employing helicopters as crash-fire fighting and rescue equipment, it was emphatically supplied by the multi-million dollar contract awarded the Kaman Aircraft Corp. for the H-43A and H-43B 'copters to be specifically assigned to this duty.

Initial deliveries will be the H-43A helicopters powered by Pratt and Whitney R-1340 piston engines. Later deliveries will be the H-43B helicopters powered by Lycoming T-53 gas turbines.

Air Force planners studying ways and means to provide even greater protection for the crews of military planes involved in accidents which might take place on or near air bases evolved the use of helicopters as crash-rescue vehicles. The concept was to provide this protection by the use of a helicopter carrying fire fighting equipment and a rescue crew which could quickly reach a downed aircraft, combat any fire caused by the crash, and effectively rescue the occupants. Such a vehicle as a crash-rescue helicopter on stand-by alert and supplementing crash trucks could reach the scene of the crash faster than ground operated equipment, and could reach aircraft which might be

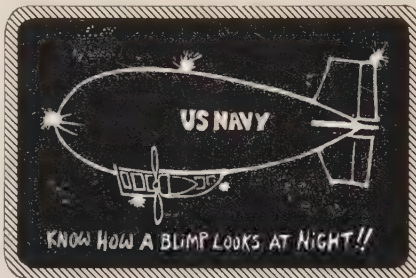
down in terrain which might prove to be inaccessible to ground operated equipment.

Blimp Limp

(Approach—USN)

The night was clear and black. Take-off and relief were made without incident.

About an hour later, base radio advised that we would be relieved on station by a ZP—that's all the dope they had—no ETA, no area, no call sign, no frequency. Knowing blimp speeds, we didn't expect him for several hours.



All this time we were working over the intersection of several busy ship channels, with ships, blinking channel buoys, a lighthouse and autos on shore, all presenting a very confusing light pattern, particularly at our low ASW altitude.

With the copilot flying, I tried to contact the ZP on several channels and guard—no luck. Sitting in another channel on UHF manual, I noticed a particularly weird light pattern ahead, but figured it was just more of the red, green, and white channel lights on the buoys blinking on and off in an irregular pattern. About the time it got through to me that particular light pattern wasn't quite right for something on the deck, a searchlight flashed on momentarily right in the middle of it. There was our blimp, looming out of the blackness, dead ahead, broadside!

I hollered at the copilot to get some altitude, fast! I'm not sure whether he ever did see it but my second action was to take over and horse back on the yoke. I also added enough power to exceed BMEP momentarily and we skimmed over the top of him. This was closer than I ever care to come to anything airborne at night.

The incident produced these suggestions for pilots:

Find out what a blimp looks like at night. Few of us have ever seen one. It looks like it has normal red and green lights on the gondola plus a yellow one; white lights at either end that look like they're a mile apart when you can't see the bag in between. The end lights and gondola lights flash alternately and I also understand from an ex-P2V pilot that they can be coded. This is mighty hard to spot against lights on the ground—we even lost track of him a time or two after we knew he was there.

Maintain at least 1,000 feet if there's even a possibility of a ZP in the area.

Use all the eyes you have available in the cockpit.

When something doesn't look right, do something about it right now, instead of waiting to see if it's worth worrying about.

(Editor note—Yep, these blimps come as a real big surprise—I scooted over one while on base to MXF last year. I had first figured it for a "slow" military transport aircraft!)

To Miss A Mountain

(USAF—Flight Safety Officers Bulletin)

Following a recent C-47 accident, several inquiries were made of various pilots concerning terrain clearance provided by airways minimum en route altitudes.

The aircraft was flying (presumably) at its assigned 10,000-foot altitude when it ran into a 10,000-foot mountain 13 miles off course. Of the 10 or 12 pilots queried, only two actually knew the minimum altitude specified on airways gives terrain clearance only within the width of the airway. Most felt that in mountainous terrain, the minimum terrain clearance was provided 10 to 25 miles to either side of the center line of the airway.

An additional note of interest in the accident—the estimated inflight temperature was -20° C. With an indicated altitude of 10,000 feet, such temperature results in a true altitude of 9,400 feet. The aircraft was located at the 9,100-foot-level on the mountain. The radio navigational aids, in this case, low frequency non-directional homers were 158 miles apart. Wind was estimated at 40-45 knots, bearing 290 degrees, the magnetic course was 280 degrees. The aircraft was located on a bearing of 225 degrees from point of departure indicating that it had gone left of the intended course.

While the misconception of terrain clearance may not have contributed to this accident, the number of people who had such a misconception may be indicative of a general misunderstanding. While the information is available in the Radio Facilities Chart, it is obvious that many of us do not read it.

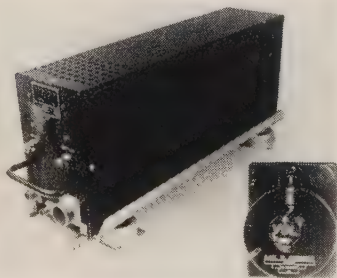
The Weed And You

(Approach—USN)

Tobacco, next to caffeine, may be the most widely used drug in modern life. As such, it is natural that it has long been the subject of much controversy.

Tobacco smoke contains at least two poisons—nicotine and carbon monoxide. All pilots are aware of the effects of cockpit gases. Carbon monoxide rates as one of the deadliest gases known to man. Minute quantities produce visual disturbances and decrease both visual acuity and night vision. This silent killer replaces oxygen in the blood. As much as ten percent of the oxygen may be replaced by fairly continuous smoking of cigarettes. The effects at altitude become increasingly more apparent.

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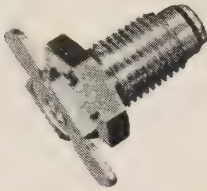
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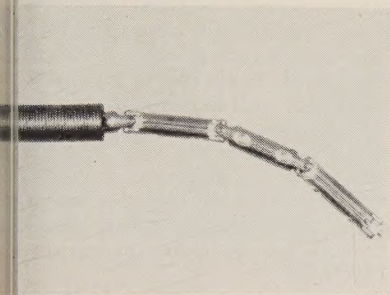
In the April issue:

The Story of the Learstar that flew the polar route—from Santa Monica, Calif., to Dusseldorf

NU-AVI-QUIP

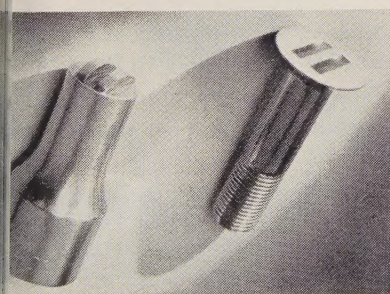
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Mark Flexible Link Shaft has equal torque in both directions, unlimited length and equal flexibility in all sizes from 3/8-inch to 3-inch diameters. Suitable for remote controls and power systems. The shaft consists of trunion blocks and half links fastened together with screws or rivets in a construction for which patents are pending. Cover materials are available in a variety of materials including armored neoprene hose, non-metallic hose or rigid tube. Endfittings available to meet given requirements. Minimum length is three times the diameter and various link lengths can be combined on one shaft using long links for tight runs.



Multitork, Cold Headed Recess Bolt

Development of "Multitork," a new cold headed recess for use in high-tensile strength, flush head bolts, is announced. Recessed bolts offer many advantages, including greater torsion strength, up to 50 percent increased fatigue life and reduced breakage during installation and maintenance. Multitork, made by Briles Manufacturing, El Segundo, Calif., is simply two normally radiused slots separated by a "web," a portion of the bolt head. This represents practice in aircraft industry in filling recesses of fasteners with air-smoothing compound to reduce air resistance. It presents a problem in complex engine designs when this filler must be removed during maintenance. Design Multitork simplifies this removal. Multitork can be headed in tool steels, Vasco-jet and the "super" alloys for future aeronautical progress. It is offered in bolt sizes of 1/4-inch through 1-inch shank diameters.



Radar Interference Blanker

A radar interference blanker, Model RB-128, is announced by Empire Devices Products Corp. It is reported to eliminate "main bang" interference in a group of normal and MTI radar sets or reduce it to a negligible value.

Such interference usually appears as spiral or dot patterns on PPI scopes, or as "running rails" on "A" scopes, preventing interpretation when high powered radars are operated close together or with little frequency separation.

In operation, the interfering signal is bracketed with a negative blanking gate to eliminate it from the protected radar's display. Since the PRR of the protected radar and that of the interfering radar are usually not synchronized, any loss of displayed information is unimportant, the firm says.

"Spur-Of-The-Moment" Airline Seat

A lightweight, rugged and comfortable passenger seat resembling lawn furniture is produced by Teco, Inc., Burbank, Calif.

The seat model TE-570 has unusual tubular geometry and exposed structure with "throw-away" seat sling. The seat slings are available in several colors to make a bright interior.

The utility seat is available in double and triple models at an average weight of 9 1/2 pounds per passenger place. Frame is a 9G unit of chrome-moly tubular welded construction with swivel seat belt anchors standard.



Portable Tie Down Kit

Designed for light and medium business-type aircraft is a "take it with you" portable tie down kit. Included are three screwdown anchor stakes, three ten-foot ropes with loop on one end, handle and canvas carrying bag. Stakes are of high strength cadmium plated steel tubing with cast aluminum tips and steel anchor rings.

Set weighs three pounds. Manufacturer is Aircraft Components, Inc.

Round Table

(Continued from page 55)

consideration long-distance phone calls. *Spengler:* Why such a drop for each additional airplane?

Denardo: A company-owned fleet of six planes may end with one or two planes going to Chicago and two going to Washington, for instance. If we brief one of those planes, it's not likely that the others will even bother us, so to speak, unless it's really bad weather. Another good reason is that they wouldn't go for \$600 a month.

Murray: I would like to re-emphasize the fact that we're not located on an airport. Our prices come close to Denardo's "off field" charges. We set up on an experimental basis a year-and-a-half ago with ten corporations. Our original charges were \$50 per month for the first plane and \$25 per month for the second. We maintained a careful log of the time devoted to the aviation accounts. At the end of a year we could see that a corporation operating two aircraft was getting twice as much service as a one plane operation. We revised our fees to \$50 per month per aircraft.

Wallace: We operate at two airports. One is flight forecasting exclusively. In order to arrive at fees, we surveyed the airport to see what might be potential on-field business. We came out with the figure of \$125 for the first plane, \$60 for the next and \$40 for each additional plane. We're not yet sure that the per-plane method is the right method of charging. We operate 12 hours a day at Westchester County Airport. We have 24-hour-per-day service available at the Bedford Airport. In spite of the fact that our fees are somewhat higher than others mentioned here, I think that all of our charges are too low. We're all sort of groping trying to find what a fee should be. I still don't know what is a fair fee.

Spengler: There's not much doubt that meteorological consulting services fees are much lower than any comparable service, such as engineering, on the field.

Van Liew: We've learned from one of our clients who has four planes that fly "all over the place," to quote a price for three months. At the end of that time we re-evaluate our services. If we've over-charged, we'll compensate; if we've under-charged, they make up the difference during the next three months. We keep a close accounting of the amount of time devoted to one client in a month, then figure if the client has been over-charged or under-charged on the basis of all the costs gone into his service.

Murray: In our proposed on-the-field airport operations, negated by our clients, the estimated cost for service seven days per week, 15 hours per day, compares with Wallace's on-the-field rates. Our clients preferred to maintain service as an off-field operation to keep the service charges down.

Spengler: We appreciate being guests of SKYWAYS For Business at lunch and for being asked to participate in this roundtable.



Safety

(Continued from page 58)

Nicotine, the second of the two poisons, is more insidious in its effects. Nicotine does not burn as was once thought. It is absorbed through the mucus membranes of the mouth and through the linings of the lungs. The smoke of each cigaret contains an average of 6.8 mgm. of nicotine of which 3 or 4 mgm. are absorbed from puffing. Nicotine causes an increase in metabolic activity requiring more oxygen for normal activity.



After three cigarets, it was found by direct experiments that vision was adversely affected; as a matter of fact, on the ground, the effect was that of being at an 8,000-foot altitude. At night this could have severe effects on one's safety. It was similarly noted that pilots who could ordinarily tolerate 20,000-21,000 feet altitude (in low pressure chambers) could only go to 16,000 feet during heavy smoking.

In conclusion, no one, not even cigaret manufacturers, claim beneficial effects from smoking. Available evidence seems to indicate that the effects of moderate smoking are probably not harmful to normal individuals. However, changes in altitude tolerances and visual acuity are of extreme importance to airmen. It would seem wise for airmen to *avoid excessive* use of tobacco in order to prolong their usefulness in flying careers and to maintain a high degree of flying fitness.

Short Landing Hazards

(ALPA—Pilot Talk)

No one intentionally lands short, but it is happening. With winter already here, the following items may help:

- (a) Ice on wings and empennage increases your weight.
- (b) Ice on runways may make you try for a touchdown too close to the end of the runway.
- (c) Snow cover on the field can reduce your ability to distinguish the end of the runway accurately.
- (d) Anticipate wind eddies at your touchdown spot caused by buildings and abrupt rises in terrain.
- (e) Rapidly rising terrain at the runway's end can create optical illusions.

- (f) Most errors are made at the beginning of the final approach, i.e. incorrect power settings which cannot be corrected sufficiently at the last minute; getting on the backside of the power-required curve during an approach.
- (g) The most critical time and distance during an approach is that from the inner marker to the end of the runway.
- (h) Check airspeed indicators for inconsistent readings that can be caused by water, ice or leaks in the system. Report these erroneous instruments promptly to the proper people.

Oxygen—Friend and Foe

If it is your practice to suck a few liters of oxygen before a tough approach or when tired, caution should be exercised relevant to smoking in the cockpit.

Oxygen is extremely inflammable and a filter-tip-fumble with 100 percent oxygen wafting over the lighted end can spell doom.

Don't Go Until You See The Red Of The Instrument Panel!

Many crews attempt night takeoffs with white lights on the instrument panel instead of red. This tends to retard the dark accommodation, so necessary over cities in high density traffic

areas. Use of full red lights and just a small amount of "standby" white light is recommended.

Low Level Flights

The frequency of accidents in the area of flight continually causes concern. Because a number of hazards exist whenever low flight is conducted, flight planning must be as meticulous as possible to avoid them.

For example, there are abrupt changes in terrain to be anticipated and avoided, invisible hazards as power lines, the possibility of exhausting fuel from one tank when not prepared for it, and others.

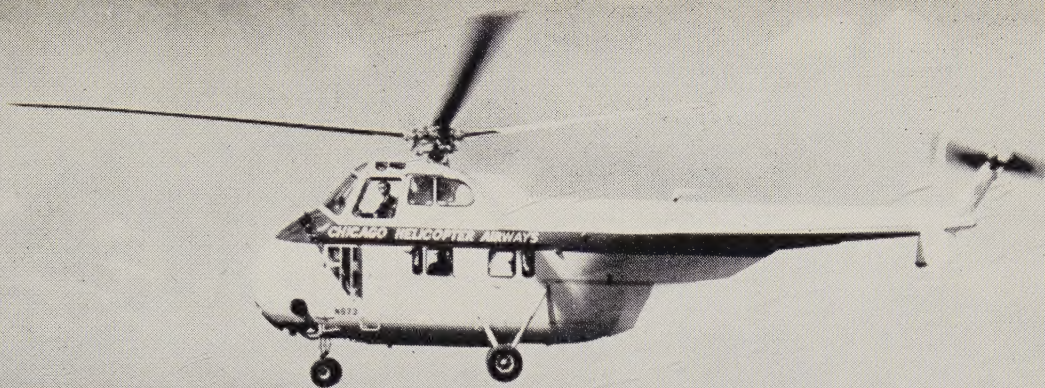
Additionally, the mere fact that flight is at low level means that a pilot must be far more alert simply to prevent the plane from drifting down the last few feet into the ground if his attention should be diverted to duties within the cockpit.

The necessity for planning has shown up in recent accidents . . . "Informal" low level flights performed on the spur of the moment resulted in disaster because hazards not appearing on standard aeronautical charts were encountered. Such charts do not aim to depict all such hazards—available recognition on the paper prevents this. All charts are designed to do is to show prominent features of civilization which can be useful for navigation, presumably for aircraft proceeding *AT LEAST* 500 feet above the terrain. (APPROACH)

COLD WEATHER COMMANDMENTS

1. Fill not thy tanks completely outdoors if thy machine is to be hangared lest thy fuel expand and overflow, creating great tribulation unto the compartment of fire.
2. Prepare not for takeoff ere thou hast removed all ice, frost, slush and mud from thy wings, lest thee learn painfully how they destroy thy lift.
3. Guard thyself carefully against carbon monoxide fumes, which sneak on thee unheralded and cause thee to fly most unprofessionally.
4. Save thy battery, for cold weather doth indeed reduce its poop.
5. Change thou periodically the pitch on thy reciprocator, lest it should become frozen ere thou push it full forward on thy final.
6. Attempt not to judge the depth of snow from thy lofty perch, for snow is deceiving and thy faulty estimate may indeed cause the overworked ASO to be plagued with AAR's and MORs.
7. Know thy oil dilution procedures, for hydraulicking and piston scuffing do verily consign thy set of jugs to the everlasting scrap heap.
8. Keep not thy cowl flaps closed when running up on the ground, for it is thy oil temp which thou art striving to increase, and not thy CHT.
9. Provide thou adequate cover for thy aircraft ere retiring to the Club, 'tis far easier to remove a snow-covered canopy from thy windscreen than to remove the snow. And the morning duty section will sing thy praises around the line shack for thy foresight.
10. Plan thy taxiing well, keeping icy taxiways in thy mind, lest thou dash thy wheel against an obstruction light or wind up in the boondocks.

(Approach—US)



Vice President and Operations Manager Robert Angstadt reports, "We have been very satisfied with the Sapphire 1016."

CHICAGO HELICOPTER AIRWAYS equips fleet with

NARCO *Sapphire* 1016 RADIO

operating scheduled helicopter passenger service between Chicago Midway Airport, O'Hare Field and downtown Chicago with an average of 5.3 landings per hour with each helicopter, the operation of Chicago Helicopter Airways, Inc., is one of the toughest tests imaginable for airborne electronic equipment.

For over a year Chicago Airways' fleet of Sikorsky S-55 helicopters has been operating with Narco Sapphire 1016 HF communications units with 360-channel transmitter and 560-channel receiver. Satisfactory operation of the Narco 1016 led to selection of the same units for the company's new fleet of 12-passenger Sikorsky S-58's.

"We selected the Sapphire 1016," says Mr. Robert Angstadt, Vice President and Operations Manager for Chicago Helicopter Airways, "after considering factors of form, performance, weight and cost. We found the Narco 1016 offered a great deal of flexibility in communications for the dollars involved. We have been very satisfied with the operation of these units."

Some of the 1016's have flown well over 1,000 hours in the Chicago helicopters, averaging 15 frequency changes per hour—a grueling test, and proof of the Sapphire 1016's stamina and ability to perform under the toughest possible conditions of vibration and continuous operation.

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Sapphire 1016



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